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"HIGHLIGHT วิจัย: รวมสรุปเนื้อหาสำคัญที่คุณต้องรู้"

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A comparison of health-related quality of life between continuous ambulatory peritoneal dialysis and automated peritoneal dialysis in children with stage 5 chronic kidney disease in Thailand: a randomized controlled trial

Pediatric Nephrology Open Access 2025

Thavorncharoensap M.; Chaikledkaew U.; Youngkong S.; Assanatham M.; **Wisanuyotin S**.; Chaiyapak T.; Pongwilairat N.; Srisuwan K.; Bhummichitra P.; Pruangprasert P.; Boonyapapong P.; Chongchet N.; Khongkhanin U.; Vachvanichsanong P.; Chartapisak W.; Pattaragarn A.

Abstract

Background: Improving health-related quality of life (HRQoL) is one of the main goals in managing stage 5 chronic kidney disease (CKD). However, limited evidence compares HRQoL between continuous ambulatory peritoneal dialysis (CAPD) and automated peritoneal dialysis (APD) in children. This open-label randomized controlled trial (RCT) aimed to compare HRQoL in pediatric patients with stage 5 CKD receiving CAPD vs. APD in Thailand. Methods: Children with stage 5 CKD were randomized 1:1 to receive APD or CAPD. The primary outcome was HRQoL, measured by EQ-5D-5L, EQ-5D-3L, and PedsQL at baseline, week 16 and week 48. Outcomes were analyzed using linear mixed models. Results: A total of 60 patients were recruited: 30 with CAPD and 30 with APD. General characteristics, utility scores measured by EQ-5D and HRQoL score measured by PedsQL were comparable between both groups at baseline. During follow-up, no significant differences in terms of utility and HRQoL scores could be identified at week 16 and week 48. Although the children in the APD group seemed to have more favorable changes in some PedsQL domains of PedsQL (school and social domain), as compared to the CAPD group, it was not found that the improvement from baseline was significantly different between both groups. Conclusions: No significant benefit of APD was found over CAPD in terms of HRQoL improvement. However, larger studies are warranted along with qualitative studies to examine the complete impacts of APD on HRQoL among pediatric patients with stage 5 CKD and their families. © The Author(s) 2025.

A randomized trial comparing medium cut-off membrane dialyzers with online hemodiafiltration for uremic toxins clearance in hemodialysis patients

Scientific Reports Volume 15, Issue 1December 2025
Article number 5467

Lukkanalikitkul E.; Kidkaem H.; Phonrat M.; Prathompong P.; **Anutrakulchai S.**

Abstract

Online hemodiafiltration (OI-HDF) and expanded hemodialysis (HDx; using medium cut-off dialyzers) have shown superior removal of diverse uremic toxins, particularly middle molecules and inflammatory cytokines, compared to conventional hemodialysis (HD). However, the relative efficacy of toxin removal between HDx and OI-HDF remains unclear. This study aimed to compare these two techniques. A randomized controlled trial was conducted among thrice-weekly hemodialysis patients. Participants were randomized into either a post-dilution OI-HDF group or an HDx group using two types of medium cut-off dialyzers (Theranova 500® and Elisio HX21®) over 8 weeks. Efficacy was assessed by reduction ratios (RR) and pre-dialysis toxin levels. Statistical analysis used T-tests and generalized estimating equations. A total of 40 patients were enrolled (mean age 64.6 ± 12.0 years; 82.5% male; dialysis vintage 53.4 ± 38.0 months). The OI-HDF group, with a mean convection volume of 24.7 L, had significantly higher RR for beta-2 microglobulin (82.8% vs. 74.6%; $p < 0.001$), parathyroid hormone (80.4% vs. 60.6%; $p = 0.007$), homocysteine (58.0% vs. 50.0%; $p = 0.009$), and kappa- and lambda-free light chains (73.3% vs. 64.6%; $p = 0.0001$ and 62.5% vs. 52.0%; $p = 0.0026$, respectively). Pre-dialysis toxin levels at the end of the study were similar between groups. These findings highlight that OI-HDF demonstrated superior removal of uremic toxins, while HDx was comparable to OI-HDF in maintaining pre-dialysis levels of middle molecules and inflammatory cytokines. Trial registration This study was registered in the Thai Clinical Trials Registry (TCTR) on the first posted date 10/02/2023 with the registration number TCTR20230210004. © The Author(s) 2025.

A Two-Point Association Tracking System Incorporated With YOLOv11 for Real-Time Visual Tracking of Laparoscopic Surgical Instruments

IEEE Access Volume 13, Pages 12225 - 12238.2025

Nyi Myo N.; Boonkong A.; **Khampitak K.**; Hormdee D.

Abstract

The application of real-time visual tracking in laparoscopic surgery has gained significant attention in recent years, driven by the growing demand for precise and automated surgical assistance. Instrument tracking, in particular, is critical for enhancing the safety and efficacy of minimally invasive surgery, where direct visibility is often limited. Real-time tracking of surgical instruments allows for more accurate maneuvering, reduces the risk of accidental tissue damage, and enables the development of advanced computer-assisted surgical systems. In this context, advancements in deep learning, particularly through detection models and modern tracking algorithms, have opened new avenues for addressing the challenges posed by real-time laparoscopic instrument tracking. However, according to the preliminary results, the existing combination of the detection model and tracking algorithm could not often handle the remaining challenges, including fast-motion speed, occlusion, overlapping, and close proximity of surgical instruments. This paper proposes a novel two-point association approach for surgical instrument tracking using a combination of YOLOv11 for object detection and refined ByteTrack for tracking. The proposed system is evaluated on a comprehensive dataset of surgical videos. The experimental results demonstrate superior performance in terms of segmentation accuracy (via F1-score), tracking robustness (via MOTA and HOTA), and real-time processing speed (via FPS). In order to validate the effectiveness of this research, real-time surgical instrument tracking is performed with the streaming of laparoscopic gynecologic surgery on a donated soft-tissue cadaver. The results indicate that the proposed system significantly improves the segmentation and tracking of surgical instruments, offering a reliable tool for enhancing intraoperative navigation and reducing the risk of surgical errors. This work contributes to the advancement of intelligent surgical systems, providing a foundation for further integration of machine learning techniques in the operating room. © 2025 The Authors.

Abnormalities of teeth and jaws in thalassemia pediatric patients

Special Care in Dentistry Volume 45, Issue 1 2025
Article number e13091

Lertsirivorakul J.; Sukanindr P.; **Jetsrisuparb A.**; Pitiphat W.; Sutthiprapaporn P.

Abstract

Aims: To assess the prevalence of abnormalities of teeth and jaws in thalassemia patients and their association with the severity and type of thalassemia. Methods and Results: This cross-sectional study was conducted among thalassemia patients, attending the Pediatric Outpatient Clinic at a university hospital in Thailand. Data were collected from medical records, clinical and orthopantomographic examinations. Descriptive statistics, Fisher's exact test, and binary logistic regression were employed for data analyses. The study included 163 patients, aged 1.9–28.6 years, with 148 accepting panoramic radiographic examination. Dental caries, convex profile, malocclusion, abnormal teeth, small maxillary sinus, absent inferior alveolar canal, and eroded mandibular cortex presented in 93.9%, 76.7%, 86.3%, 22.9%, 52.7%, 49.3%, and 29.7% of the participants, respectively. Severe thalassemia patients had a higher prevalence of malocclusion ($p < .01$) and small maxillary sinus ($p = .02$) than non-severe group. Compared to patients with β-thalassemia, those with coinheritance of α- and β-thalassemia demonstrated less malocclusion ($p = .03$) and small maxillary sinus ($p < .001$). No significant associations were found between the severity and type of thalassemia with other abnormalities. Conclusion: Thalassemia pediatric patients manifested several dental and jaw abnormalities, with malocclusion and small maxillary sinuses being associated with severe thalassemia and β-thalassemia. © 2024 Special Care Dentistry Association and Wiley Periodicals LLC.

Air Pollutants Associated Hospitalization in Pediatric Pneumonia: A National Database Analysis

Pediatric Pulmonology Volume 60, Issue 2 2025
Article number e71009

Sitthikarnkha P.; Uppala R.; Techasatian L.; Saengnipanthkul S.; Niamsanit S.; Peansukwech U.; Sutra S.; Anantasit N.; Teeratakulpisarn J.; Jenwitheesuk K.; Kosararaksa P.

Abstract

Background: Pneumonia ranks as a leading contributor to hospital admissions and mortality among children worldwide. This study aimed to investigate the association between aerosol components of air pollution and pediatric pneumonia hospitalization. Methods: Employing an observational study design, data from hospitalized children under 15 years diagnosed with pneumonia in Thailand from 2015 to 2019 were analyzed to ascertain the relationship between air pollution and health outcomes. Utilizing the Modern-Era Retrospective analysis for Research and Application version 2 (MERRA-2) data for aerosol components, and adjusting for demographic and geographical factors, using Poisson regression models. Results: A total of 732,700 children were hospitalized with pneumonia, with children under the age of five accounting for the majority of admissions (637,313 cases, 86.9%). Dust had the strongest association with the incidence rate ratio of hospitalization in children with pneumonia across all age groups. The incidence rate ratio was 1.288 (95% CI: 1.271–1.304, $p < 0.001$), 1.392 (95%CI: 1.344–1.442, $p < 0.001$), and 1.349 (95%CI: 1.265–1.439, $p < 0.001$) for children under the age of 5, 5 to under 10, and 10 to under 15, respectively. The association of hospitalization among children with pneumonia increased by 21.0% and 13.8% for each 1 μg/m3 increase in black carbon and dust levels, respectively. Conclusion: The findings reveal a compelling link between certain air pollutants and pediatric pneumonia hospitalization, highlighting the urgent need for targeted interventions to mitigate air pollution's adverse effects. © 2025 The Author(s). Pediatric Pulmonology published by Wiley Periodicals LLC.

Anatomical and histological classification of the stellate ganglion: implications for clinical nerve blocks

Surgical and Radiologic Anatomy Volume 47, Issue 1 2025
Article number 26

Samrid R.; King M.; Pujol J.; Reina M.A.; Iwanaga J.; Tubbs R.S.

Abstract

Purpose: The stellate ganglion (SG), or cervicothoracic ganglion, is usually located anterior to the neck of the first rib. Various techniques, such as ultrasonographic imaging and fluoroscopic approaches, are used to assist in the anesthetic blockade of the SG. However, there are reported complications associated with SG block; some patients had medication-related or systemic side effects, and some had procedure-related or local side effects. So, understanding the anatomy of the SG is critical for diagnosis and treatment of nerve block accuracy and to avoid unnecessary nerve damage during surgical procedures. This study aimed to collect data for the gross shape of the SG and histologically investigate these different types. Methods: The SG from 31 formalin-fixed adult cadavers (59 sides) were studied. The prevalence and shape of the SG were recorded and photographed. Next, the SG for each type was examined histologically. Results: The SG were classified into four types based on their shape: dumbbell, spindle, star, and inverted L shapes. The frequency of each type was as follows: spindle (47.46%), dumbbell (27.12%), star (23.73%), and L-inverted shapes (1.69%). Each type had a similar number of nerve cell bodies. Interestingly, the inverted-L shaped SG was histologically, discontinuous but grossly fused. Conclusion: An improved understanding of the SG's macro and microanatomy can help better understand patient presentations and improve clinical and surgical results in procedures performed near this important neck structure. © The Author(s) 2024.

Anatomy and variations of the carina and its cartilaginous makeup: a cadaveric study

Surgical and Radiologic Anatomy Volume 47, Issue 1 2025
Article number 71

Kim C.Y.; Rizzuto K.; Tahan D.; Shekhawat D.; **Samrid R.**; Tabira Y.; Bordes S.J.; Iwanaga J.; Tubbs R.S.

Abstract

Purpose: The carina, located at the bifurcation of the trachea, has been regarded as a part of the trachea. Although clinically useful as an anatomical landmark, studies of its detailed morphology are lacking in the literature. Methods: The distal trachea and left and right main bronchi were harvested from 32 cadavers and the carina studied using microsurgical dissection, endoscopy, micro-CT, and histology. Results: The right bronchial cartilages were most commonly involved in forming the carina (72.41%), and the left bronchial cartilages were the second most commonly involved (37.93%). The carinal cartilages were slightly deviated to the left of midline in 4.37%. Micro-CT clearly identified the contributions to the carinal cartilages. Conclusion: Although the carina has been regarded as a part of the distal trachea, the present study found that most of the carinal cartilages were composed of the most inferior tracheal ring or bronchial cartilage(s). The right main bronchial cartilage was the most common contributor, and the left main bronchus was the second most common contributor. Additional knowledge of this structure can benefit patient care. © The Author(s) 2025.

Angulation of the dural venous sinuses in the posterior cranial fossa: an anatomical study and its implications for venous circulation

Neurosurgical Review Volume 48, Issue 1 2025
Article number 66

Cardona J.J.; **Samrid R.**; Kim C.Y.; Tabira Y.; Dumont A.S.; Iwanaga J.; Tubbs R.S.

Abstract

The purpose of the current study was to determine the angulation of the dural venous sinuses in soft tissue, to evaluate differences between types of tissue, and to discuss the potential influence of these angulations on intracranial venous hemodynamics and related pathologies. Angulations formed in different segments of the transverse, sigmoid, and superior sagittal sinuses were measured in 13 adult human cadaveric heads (26 sides). After the soft tissues were removed, measurements were also taken from the underlying bone. The overall angulation of the transverse sinus was assessed using two reference points, while the lengths and widths of the dural venous sinuses were measured using microcalipers. Statistical analyses were performed considereing sides, sex, and types of tissue. The mean angulation of the superior sagittal sinuses - transverse sinus junction was 116 degrees. The mean angulations of the transverse sinus - sigmoid sinus junction in medial and superior views were 108 degrees and 114 degrees, respectively. The mean angulations of the entire transverse sinus at two different points were 45 degrees and 44 degrees, respectively. There were statistically significant differences in angulation in some variables when they were adjusted for sides and sex, but not types of tissue. Angulation is a paramount factor in venous hemodynamics. Certain angulations of the dural venous sinuses differed significantly between sides and sexes, but not between types of tissue. Future research should investigate the effects of these angulations on intracranial venous circulation and their relevance to related pathologies. © The Author(s) 2025.

Antioxidative and anticancer effects of Tacca chantrieri extract enhancing cisplatin sensitivity in cholangiocarcinoma cells

PLoS ONE Volume 20, Issue 1January 2025
Article number e0317111

Armartmuntree N.; Kittirat Y.; Promraksa B.; **Loilome W.**; Dokduang H.; Techasen A.; Sansomchai P.; **Thanee M.**; O'Connor T.; Kongthitilerd P.; Padthaisong S.

Abstract

Cholangiocarcinoma (CCA) poses a significant healthcare challenge due to the limited effects of chemotherapeutic drugs. Natural products have gained widespread attention in cancer research according to their promising anti-cancer effects with minimal adverse side effects. This study explored the potential of Tacca chantrieri (TC), a plant rich in bioactive compounds, as a therapeutic agent for CCA. TC, a traditional remedy in Southeast Asia, exhibits anti-inflammatory and cytotoxic properties against cancer cells. Ethanol extraction of TC's rhizome was conducted, and antioxidant activities were assessed through various assays, including total phenolic and flavonoid contents, DPPH radical scavenging, and FRAP assays. The cytotoxic effects of TC extracts on CCA cell lines (KKU-213A and KKU-213C) were evaluated using MTT assays and flow cytometry. Protein levels of Bax and Bcl-2 were determined through western blot analysis. Additionally, the study investigated whether the combined impact of TC extract and cisplatin on CCA cells enhanced cisplatin's efficacy as an anti-cancer treatment. Results indicated that ethanolic extracts from TC contained phenolic and flavonoid compounds with robust antioxidant activity. TC treatments reduce CCA cell viability, inhibiting growth and inducing apoptosis in a dose-dependent manner. The Bax/Bcl-2 ratio increases, signifying a pro-apoptotic shift. Importantly, TC extract not only decreases cell viability but also augments the inhibitory effect of cisplatin in CCA cells. These results provide valuable insights into TC's therapeutic mechanisms and its potential to synergize with conventional chemotherapeutic agents, offering a promising avenue for the development of alternative and more effective strategies for CCA treatment. © 2025 Armartmuntree et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Anxiety-like behavior associated with alcohol withdrawal syndrome in mice and possible antagonistic effect of Polycephalomyces nipponicus aqueous extract

Tropical Journal of Pharmaceutical ResearchVolume 24, Issue 1, Pages 69 - 75January 2025

Rungruang S.; Sattayasai J.; Kaewmor J.; Supawat A.; Sangdee K.; Lahnwong C.; Phunikhom K.

Abstract

Purpose: To investigate the effect of Polycephalomyces nipponicus (P. nipponicus) extract on ethanol withdrawal syndrome in mice. Methods: Male Institute of Cancer Research (ICR) mice were divided into 3 groups of 10 animals per group. Mice were intraperitoneally injected with ethanol (2 g/kg/day) or normal saline solution 0.9 % (0.05 mL/kg) as control for 10 consecutive days. Anxiety-like behavior associated with alcohol withdrawal syndroms (AWS) was assessed at 12, 24, and 36 h after the last dose of ethanol or normal saline using the light-dark box, open field, and elevated plus maze tests. Thereafter, the time that showed the most prominent AWS was chosen to determine the effect of P. nipponicus extract. P. nipponicus extract (600 mg/kg, orally) or diazepam (4 mg/kg, i.p., as a positive control), was administered 1 h before the tests. Results: Polycephalomyces nipponicus extract significantly mitigated anxiety-like behavior in alcohol-withdrawn mice across all evaluated models ($p < 0.05$). The results suggest that P. nipponicus reduced alcohol withdrawal syndrome, especially anxiety-like behavior. Conclusion: This study provides evidence that P. nipponicus may be useful in the treatment of alcohol withdrawal syndrome, especially anxiety-like behavior. This study shows the potential of P. nipponicus as a new intervention for alleviating neurochemical imbalances linked to alcohol withdrawal. © 2025 The authors.

Artificial Intelligence as a Tool for Creating Patient Visit Summary: A Scoping Review and Guide to Implementation in an Erectile Dysfunction Clinic

Current Urology Reports Volume 26, Issue 1 2025
Article number 20

Lumbiganon S.; Abou Chawareb E.; Moukhtar Hammad M.A.; Azad B.; Shah D.; Yafi F.A.

Abstract

Purpose of Review: In modern healthcare, the integration of artificial intelligence (AI) has revolutionized clinical practices, particularly in data management and patient visit summary creation. Manual creation of patient summary is repetitive, time-consuming, prone to errors, and increases clinicians' workload. AI, through voice recognition and Natural Language Processing (NLP), can automate this task more accurately and efficiently. Erectile dysfunction (ED) clinics, which deal with specific pattern of conditions together with an involvement of broader systemic issues, can greatly benefit from AI-driven patient summary. This scoping review examined the evidence on AI-generated patient summary and evaluated their implementation in ED clinics. Recent Findings: A total of 381 articles were initially identified, 11 studies were included for the analysis. These studies showcased various methodologies, such as AI-assisted clinical notes and NLP algorithms. Most studies have demonstrated the ability of AI to be used in real life clinical scenarios. Major electronic health record platforms are also integrating AI to their system. However, to date, no studies have specifically addressed AI for patient summary creation in ED clinics. © The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2024.

ASO Visual Abstract: Outcomes for Patients with Obesity Undergoing Adrenalectomy for Pheochromocytoma-An International Multicenter Analysis

Annals of surgical oncology Volume 32, Issue 4,
Pages 2376 - 23781 April 2025

Verhoeff K.; Parente A.; Wang Y.; Wang N.; Wang Z.; Śledziński M.; Hellmann A.; Raffaelli M.; Pennestrì F.; Sywak M.; Papachristos A.J.; Palazzo F.F.; Sung T.-Y.; Kim B.-C.; Lee Y.-M.; Eatock F.; Anderson H.; Iacobone M.; Daukša A.; Makay O.; Turk Y.; Atalay H.B.; van Dijkum E.J.M.N.; Engelsman A.F.; Holscher I.; Materazzi G.; Rossi L.; Becucci C.; Shore S.L.; Fung C.; Waghorn A.; Mihai R.; Balasubramanian S.P.; Pannu A.; Tatarano S.; Velázquez-Fernández D.; Miller J.A.; Serrao-Brown H.; Chen Y.; Demarchi M.S.; Djafarrian R.; Doran H.; Wang K.; Stechman M.J.; Perry H.; Hubbard J.; Lamas C.; Mercer P.; MacPherson J.; Lumbiganon S.; Calatayud M.; Hanzu F.A.; Vidal O.; Araujo-Castro M.; Ojeda C.M.; Papavramidis T.; de Vera Gómez P.R.; Aldrees A.; Altwjry T.; Valdés N.; Álvarez-Escola C.; Sanz I.G.; Carrera C.B.; Manjón-Miguélez L.; De Miguel Novoa P.; Recasens M.; Centeno R.G.; Lázaro C.R.; Van Den Heede K.; Van Slycke S.; Michalopoulou T.; Aspinall S.; Melvin R.; Lau J.W.L.; Cheah W.K.; Tang M.H.; Oh H.B.; Ayuk J.; Sutcliffe R.P.

Biodegradable antibacterial food packaging based on carboxymethyl cellulose from sugarcane bagasse/cassava starch/chitosan/gingerol extract stabilized silver nanoparticles (Gin-AgNPs) and vanillin as cross-linking agent

Food ChemistryVolume 46628 February 2025 Article number 142102

Plaeyao K.; Talodthaisong C.; Yingyuen W.; Kaewbundit R.; Tun W.S.T.; Saenchoopa A.; Kayunkid N.; Wiwattananukul R.; Sakulsombat M.; Kulchat S.

Abstract

The increasing issue of plastic waste necessitates improved solutions, and biodegradable food packaging is a promising alternative to traditional plastic. In this study, we prepared packaging films using cassava starch (CV), chitosan (CT) and carboxymethyl cellulose (CMC), with glycerol as a plasticizer. However, these films require modifications to enhance their mechanical properties. Therefore, we modified the films by adding vanillin as the crosslinking agent and gingerol extract stabilized silver nanoparticles. The films were fabricated using the film-casting method and characterized by FTIR, XRD, SEM, TGA, mechanical property test, biodegradability test, anti-bacterial test and food packaging evaluation test. Among these films, CT/CV/V/CMC/Gin-AgNPs1 exhibited superior mechanical properties and demonstrated excellent anti-bacterial property both for gram-positive (S. aureus) and gram-negative (E. coli) bacteria and biodegradability, losing over 50% of its weight after 21 days of burial in soil and effectively preserved grapes at 4 °C for 21 days. © 2024 Elsevier Ltd

Caffeic Acid Attenuates Neuronal Apoptosis, Oxidative Stress, and Memory Deficits via Antioxidant Properties in Aging Rats Induced by D-Galactose

Molecular NeurobiologyVolume 62, Issue 4, Pages 5143 - 5155

Saenno R.; Suwannakot K.; Prajit R.; **Sirichoat A.; Aranarochana A.;** Sritawan N.; **Pannangrong W.**; Wigmore P.; **Welbat J.U.**

Abstract

Aging is a main factor related to cognitive deficits. D-Galactose (D-gal), a monosaccharide, increases oxidative stress leading to cellular senescence, memory deficits, and neuronal apoptosis. Caffeic acid (CA) is an antioxidant that can interrupt free radicals and reduce oxidative stress. The present study purposely evaluated the benefits of CA in attenuating loss of neuronal apoptosis, oxidative stress, and memory in D-gal-activated rat brain aging. Male Sprague–Dawley rats were arbitrarily allocated into 6 groups (9 rats per group). The D-gal group was intraperitoneal (i.p.) injected with D-gal (50 mg/kg). The CA groups were orally given 20 or 40 mg/kg CA for 8 weeks. During that time, the co-treatment groups were given 50 mg/kg of D-gal and 20 or 40 mg/kg of CA. The results reveal that animals receiving only D-gal showed memory deficit in both the novel object location (NOL) and novel object recognition (NOR) tests. Reduction in scavenging enzyme activities and levels of B-cell lymphoma 2 (Bcl-2) protein expression were detected in the D-gal group. Furthermore, D-gal treatment significantly enhanced in the number of p21 positive cells in the subgranular zone (SGZ) of the hippocampal dentate gyrus, Bcl-2 associated X protein (Bax) and caspase3 protein expression, and malondialdehyde (MDA) levels. By contrast, both 20 and 40 mg/kg CA treatment alleviated these effects. These consequences confirmed that D-gal-activated brain aging led to enhancing apoptotic protein expression including Bcl-2, Bax, and caspase3 and memory impairments. Nevertheless, CA attenuated these effects in brain aging induced by D-gal via antioxidant properties. © The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2024.

Cannabis sativa L. Leaf Oil Displays Cardiovascular Protective Effects in Hypertensive Rats

International Journal of Molecular SciencesOpen AccessVolume 26, Issue 5March 2025 Article number 1897

Khamseekaew J.; Duangjinda M.; **Maneesai P.**; Labjit C.; Rattanakanokchai S.; **Rongpan S.; Pakdeechote P.; Potue P.**

Abstract

Hemp (Cannabis sativa L.) leaf oil (HLO) contains several bioactive compounds such as phenolics, flavonoids, and quercetin. However, the effects of HLO on hypertensive conditions have not yet been investigated. This study investigated the cardiovascular protective effects of HLO in a nitric oxide (NO) synthase inhibitor-induced hypertensive rat model. Five weeks of HLO administration significantly prevented blood pressure elevation, improved cardiac function, and mitigated cardiac hypertrophy. Furthermore, HLO ameliorated vascular dysfunction by reducing sympathetic nerve stimulation-induced vasoconstriction, increasing endothelium-dependent vasorelaxation, as well as decreasing vascular wall thickness and vascular smooth muscle cell proliferation. HLO inhibited renin–angiotensin system (RAS) activation and downregulated angiotensin II type 1 (AT1) receptor and NADPH oxidase expression. Additionally, HLO normalized the circulating NO metabolites, decreased oxidative stress, and enhanced antioxidant status. These findings suggest that HLO protects against cardiovascular dysfunction and preserves its morphology. The mechanism of action might involve the suppression of RAS overactivity and oxidative stress through the Ang II/AT1 receptor/NOX2 pathway in NO-deficient hypertension. © 2025 by the authors.

Characterization of drum-dried thickeners for dysphagia-adapted liquid diets

Applied Food ResearchVolume 5, Issue 1June 2025 Article number 100788

Wattanapan P.; Sungsinchai S.; Tanjor S.; Yangyuen S.; Chiawchanwattana C.; Devahastin S.; Niamnuy C.

Abstract

Dysphagia patients require suitable thickened liquid foods that are easy and safe to swallow. The use of thickeners is one possible approach to increasing the viscosity of liquid foods. This study aimed to develop a powdery thickener with high dispersibility and thickening capability using drum drying. The experimental design for thickener polysaccharides—namely xanthan gum (XG), carboxymethyl cellulose (CMC), and modified corn starch (MCS)—was conducted using the extreme vertices method (10 formulas), followed by mixing with maltodextrin, potassium chloride, and water. The solution was dried using a drum dryer at 120 °C. The dried samples were evaluated in terms of thickening capability, solubility, and stability in thickened liquid foods. The moisture content of the dried samples ranged from 4.40% to 6.06% (d.b.). The use of XG as the main thickener polysaccharide in the prepared thickeners resulted in higher viscosity and stability of all thickened liquid foods compared to CMC and MCS, respectively. In the cases of water, orange juice, milk, and cream soup thickened by the prepared thickener, the formulation containing only XG as the thickener polysaccharide exhibited the highest viscosities. Although orange juice and cream soup thickened with this formulation showed lower viscosities than those thickened with a commercial thickener, the same honey-like consistency was observed. Conversely, water and milk thickened with this formulation demonstrated higher viscosities than those thickened with the commercial product. The results of rheological, tribological, in vitro digestibility, and swallowing tests for this thickener were comparable to the commercial thickener, indicating its potential for use in dysphagia liquid diets. © 2025

Characterization of Patient-derived Xenograft Models of Liver Fluke-associated Cholangiocarcinoma: From Establishment to Molecular Profiling

Anticancer Research Volume 45, Issue 2, Pages 579 - 592 February 2025

Dokduang H.; Jarernrat A.; **Titapun A.**; Sitthirak S.; Padthaisong S.; Kittirat Y.; Sangkamanon S.; **Sa-Ngiamwibool P.**; **Wangwiwatsin A.**; **Klanrit P.; Namwat N.**; Jusakul A.; Murakami Y.; **Loilome W.**

Abstract

Background/Aim: Cholangiocarcinoma (CCA) is an aggressive cancer with limited effective chemotherapy and targeted therapy options. Existing cell lines and animal models only partially mimic the characteristics of the tumor, highlighting the need for more effective models to study the biology of cancer and drug responses. This study aimed to establish and characterize patient-derived xenograft (PDX) models of CCA. Materials and Methods: Tumor samples from 40 CCA patients were subcutaneously implanted into non-obese diabetic/ShiJic-severe combined immunodeficiency Jcl mice to establish patient-derived xenograft (PDX) models. Successfully engrafted tumors were passaged across three generations. Histological features were analyzed using H&E staining and immunohistochemistry for cytokeratin-19, cytokeratin-7, heppar-1 and arginase-1. Whole exome sequencing (WES) was performed to assess genetic stability and identify somatic mutations. Results: A total of eight PDX models were successfully created, representing 20% of the total cases. Histological comparisons showed strong concordance between patient tumors and their corresponding xenografts in the eight PDX models across generations. WES analysis confirmed the genetic stability of the PDX models, with significant somatic mutations identified in key genes such as TTN, MUC12, ARID1A, TP53, and RNF43. Conclusion: The CCA PDX model could reflect both the histological and genetic characteristics of the original tumors, providing a valuable tool for studying tumor biology and serving as a preclinical model to develop personalized treatment options for CCA. © 2025 International Institute of Anticancer Research. All rights reserved.

Chemical composition and anticancer potential of water extracts derived from ground powder of Thai germinated brown rice (Oryza sativa L.)

Natural Product Research Open Access2025

Dokduang H.; Katenak A.; Kittirat Y.; Tomacha J.; Promraksa B.; Taing L.; Na Nakorn S.; **Klanrit P.; Namwat N.; Titapun A.; Loilome W.**

Abstract

Powdered germinated Thai rice (Oryza sativa L.) is widely utilised as a dietary supplement to support health and prevent diseases. This study investigated the bioactive compound profile of water extracts from beverage powder made from Thai germinated brown rice (GBRE) and assessed its anticancer effects on cholangiocarcinoma, lung cancer, and liver cancer cell lines. Proton nuclear magnetic resonance (1H-NMR) revealed 23 metabolites, including amino acids, sugar, phenolic compounds and nitrogenous compounds. Additionally, GBRE exhibited anticancer properties by effectively inhibiting cancer cell growth, inducing cell cycle arrest, and reducing cell migration. Our findings highlight the nutritional benefits and anticancer potential of germinated brown rice powder in impeding cancer cell progression. This study demonstrates the nutritional benefits and anticancer effects of germinated brown rice powder in inhibiting cancer cell progression. Incorporating germinated brown rice powder for a nutraceutical supplement can be served as a potential strategy for cancer prevention or therapeutic intervention. © 2025 Informa UK Limited, trading as Taylor & Francis Group.

Clinical course and potential associated factors of progressive calcinosis cutis in early systemic sclerosis: a cohort study

Annals of Medicine Volume 57, Issue 12025 Article number 2455535

Kanjanajarurat V.; Chowchuen P.; Foocharoen C.; Thammaroj P.

Abstract

Background: Calcinosis cutis of hands can progress and impair hand function in systemic sclerosis (SSc). Understanding the natural disease and comprehensive management is crucial. Objective: To examine clinical course and identify risk factors associated with progressive calcinosis cutis in early SSc. Methods: Dual time-point hand radiography was performed at initial and after diagnosis at median interval (range 2.9 ± 0.4 years) in 53 recruited patients with early SSc. Progressive calcinosis cutis defined as the worsening of severity according to simple soring scoring system (no, mild, moderate, severe) comparing to previous hand radiography. Odds ratio (OR) and their 95%CI were used to evaluate associated factors and calcinosis cutis progression. Results: A total of 35 cases (155 per 100 person-year), showed progressive calcinosis cutis with the incidence of 22.6 per 100-person-years (95%CI 16.2–31.4). The most common area of progressive calcinosis cutis was at right distal phalanx, 12 of 35 (22.6%). Although statistically not significant by logistic regression analysis, elderly patients, Raynaud's phenomenon, ischemic ulcer, telangiectasia, and salt-pepper tended to be more frequent in progressive calcinosis cutis than those who had no progression. Around one-quarter of those who had no calcinosis cutis experienced worsening across more than one level of severity. Conclusion: Progression of calcinosis cutis in early SSc increased over time, particularly within 3 years after the first evaluation. Elderly patients and those with vasculopathy were found more frequently. Further study with a larger cohort is needed to support these findings. © 2025 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Clinical impacts of Artocarpus lakoocha agglutinin-binding glycans for prognosis and treatment of cholangiocarcinoma

Scientific Reports Volume 15, Issue 1 December 2025 Article number 436

Sintusen P.; Vaeteewoottacharn K.; Cha'on U.; Pairojkul C.; Aphivatanasiri C.; Suttiprapa S.; Mahalapbutr P.; Silsirivanit A.; Wongkham S.; Luang S.

Abstract

Artocarpus lakoocha agglutinin (ALA), which specifically targets the Gal/GalNAc components of complex glycans, was isolated from the seeds of Artocarpus lakoocha. This study is the first to explore the role of ALA in identifying aberrant glycans, designated ALA-binding glycans (ALAG), and its implications in cholangiocarcinoma (CCA). ALA-histochemistry was used to evaluate ALAG expression in liver fluke-induced CCA tissues from hamsters (n = 60). Elevated ALAG expression was observed in hyperplastic ducts and significantly increased in CCA tissues, while normal biliary epithelium and hepatocytes showed no expression. Similar results were found in patient CCA tissues (n = 68), where higher ALAG levels correlated with shorter survival rates, indicating the involvement of ALAG in CCA development and progression. Furthermore, ALA treatment inhibited cell viability in CCA cell lines, as demonstrated by MTT and colony formation assays, and Ki-67 expression. ALA treatment also decreased cell migration and invasion, as shown by Transwell assays. Gelatin zymography suggested that these effects might be associated with reduced MMP-9 activity. Overall, these findings may position ALAG as a potential marker for poor prognosis in CCA, while ALA may serve as a novel lectin for both detection and therapeutic applications in CCA. © The Author(s) 2024.

Clinical mimickers of cutaneous melanoma in skin of colour: a systematic review of cases

Archives of Dermatological ResearchVolume 317, Issue 1
December 2025 Article number 171

Mehta S.; Metko D.; McMullen E.; Julanon N.; Hwang K.; Akuffo-Addo E.; Vender R.

Abstract

[No abstract available]

Clinical outcomes after surgical resection in asymptomatic and symptomatic children with congenital lung malformations

Journal of Cardiothoracic Surgery Open AccessVolume 20, Issue 1
December 2025 Article number 126

Uppala R.; Udomdirekkul P.; Niamsanit S.; Techasatian L.; Saengnipanthkul S.; Sitthikarnkha P.

Abstract

Purpose: Our study aims to evaluate the outcomes of children with congenital lung malformation (CLM) who have undergone surgical resection. Methods: A retrospective analysis was conducted among children under 18 who were diagnosed with CLM and underwent surgery at Srinagarind Hospital, Khon Kaen University between January 2007 and December 2023. We collected data on surgical outcomes, including operative time, postoperative complications, and mortality rate. Results: During our study period, a total of 38 children with CLM were undergone surgery. The median time for diagnosis was 9 months (IQR 1–33 months). Congenital pulmonary airway malformation was the most common diagnosis, affecting 26 children (68.4%). Of these, 25 children were operated on when they presented with symptoms, while 13 children were operated on even though they were asymptomatic. The median age at surgery was 12 months (IQR 3–32 months) for symptomatic children and 6 months (IQR 3–12 months) for asymptomatic children (P = 0.201). After the surgery, symptomatic children had a higher rate of postoperative complications than asymptomatic children, with 52% and 15.4%, respectively (P = 0.028). The median length of stay for symptomatic children was 17 days, compared to 11 days for asymptomatic children (P = 0.280). Conclusions: Early surgery of CLM in asymptomatic children was associated with a lower rate of postoperative complications. Further studies are needed to investigate long-term complications. © The Author(s) 2025.

Clinical outcomes and associated factors with mortality in systemic sclerosis patients with sarcopenia

American Journal of the Medical SciencesVolume 369, Issue 1, Pages 35 - 43

Hongkanjanapong S.; Pongkulkiat P.; Mahakkanukrauh A.; Suwannaroj S.; Foocharoen C.

Abstract

Background: Despite the high incidence of sarcopenia in systemic sclerosis (SSc) patients, there is currently limited evidence on their outcomes. Objectives: Our study aimed to determine clinical courses, outcomes, and identify factors associated with mortality in the SSc patients with sarcopenia. Methods: A historical cohort study was conducted in 180 adult SSc patients diagnosed with sarcopenia according to the criteria of Asian Working Group for Sarcopenia 2019, who were attending the Scleroderma Clinic at Khon Kaen University between July 2019 and November 2021. Results: Forty-one were diagnosed with sarcopenia. A total of 443.8 persons-year, the respective mortality rate for SSc patients with and without sarcopenia was 5.05 and 5.22 per 100-person-years, showing no statistical difference (p = 0.58). Sarcopenia was not a significant mortality risk in SSc patients with a hazard ratio (HR) of 1.34, 95% CI 0.48–3.75. The survival rate from the baseline evaluation of sarcopenia to the last follow-up of the patients with sarcopenia at 6-, 12-, 18-, and 24-months were 97.6%, 95.1%, 92.7%, and 87.8%. Hospitalization was the sole factor significantly associated with the mortality risk, with a HR of 14.21 (95% CI 2.36–85.60). Sarcopenia itself did not appear to be a significant predictor of disease progression, it did contribute significantly to the progression of salt and pepper skin (p=0.01). Conclusions: The mortality rate of SSc patients with sarcopenia increased after a 2-year follow-up but no difference from non-sarcopenic patients. Once these patients required hospitalization, the mortality risk increased by over 10 times. Further long-term follow-up in a large cohort is suggested. © 2024 Southern Society for Clinical Investigation

Comparative Analysis of ChatGPT and Human Expertise in Diagnosing Primary Liver Carcinoma: A Focus on Gross Morphology

Siriraj Medical Journal Open AccessVolume 77, Issue 2, Pages 119 - 129

Sa-ngiamwibool P.; Laohawetwanit T.

Abstract

Objective: This study aims to compare the diagnostic accuracy of customized ChatGPT and human experts in identifying primary liver carcinoma using gross morphology. Materials and Methods: Gross morphology images of hepatocellular carcinoma (HCC) and cholangiocarcinoma (CCA) cases were assessed. These images were analyzed by two versions of customized ChatGPT (e.g., with and without a scoring system), pathology residents, and pathologist assistants. The diagnostic accuracy and consistency of each participant group were evaluated. Results: The study analyzed 128 liver carcinoma images (62 HCC, 66 CCA), with the participation of 13 pathology residents (median experience of 1.5 years) and three pathologist assistants (median experience of 5 years). When augmented with a scoring system, ChatGPT's performance was found to align closely with first- and second-year pathology residents and was inferior to third-year pathology residents and pathologist assistants, with statistical significance (p-values < 0.01). In contrast, the diagnostic accuracy of ChatGPT, when operating without the scoring system, was significantly lower than that of all human participants (p-values < 0.01). Kappa statistics indicated that the diagnostic consistency was slight to fair for both customized versions of ChatGPT and the pathology residents. It was noted that the interobserver agreement among the pathologist assistants was moderate. Conclusion: The study highlights the potential of ChatGPT for augmenting diagnostic processes in pathology. However, it also emphasizes the current limitations of this AI tool compared to human expertise, particularly among experienced participants. This suggests the importance of integrating AI with human judgment in diagnostic pathology. © All material is licensed under terms of the Creative Commons Attribution 4.0 International (CC-BY-NC-ND 4.0) license unless otherwise stated.

Comparative Effectiveness and Safety of Off-Label Underdosed Direct Oral Anticoagulants in Asian Patients with Atrial Fibrillation: A Systematic Review and Meta-analysis

Drug Safety Volume 48, Issue 1, Pages 25 - 42 January 2025
Article number 774109

Mongkhon P.; Singkham N.; Ponok K.; Liamsrijan N.; Phoosa W.; Phattanasobhon S.; Fanning L.; **Senthong V.**; Saokaew S.

Abstract

Introduction: Off-label underdosed direct oral anticoagulants (DOACs) are commonly utilised in Asian patients with atrial fibrillation (AF) since they are prone to bleeding with OACs. However, the efficacy and safety of off-label underdosing DOACs are controversial. This study aimed to compare the effectiveness and safety of off-label underdosed DOACs in Asian patients with AF. Methods: PubMed, Embase, Cochrane library, and ClinicalTrials.gov were searched from 2010 to July 5, 2024, for randomised controlled trials or observational studies that compared off-label DOACs and on-label/warfarin in Asian patients with AF. The primary outcomes included ischaemic stroke or systemic embolism (ISSE) and major bleeding (MB), while secondary outcomes included all-cause death, gastrointestinal bleeding (GIB), intracranial haemorrhage (ICH), and myocardial infarction (MI). Hazard ratios (HRs) with 95% confidence intervals (CIs) were pooled using random-effects models. Results: Twenty observational studies were included. Seventeen studies compared off-label underdosed DOACs versus on-label DOACs, whereas five studies compared off-label underdosed DOACs versus warfarin. Off-label underdosed DOACs were associated with higher risk of ISSE (pooled HR [pHR] = 1.17; 95% CI: 1.00–1.38, p = 0.048) and ICH (pHR = 1.27; 95% CI: 1.06–1.52, p = 0.010) versus on-label. Subgroup analysis demonstrated increased ISSE risk with off-label underdosed rivaroxaban compared to on-label (pHR = 1.49; 95% CI: 1.07–2.08). Compared to warfarin, off-label underdosed DOACs were associated with decreased risk of MB (pHR = 0.46; 95% CI: 0.32–0.65, p < 0.001), GIB (pHR = 0.52; 95% CI: 0.29–0.93, p = 0.028), ICH (pHR = 0.60; 95% CI: 0.42–0.86, p = 0.005), and all-cause death (pHR = 0.70; 95% CI: 0.56–0.87, p = 0.001), while illustrating similar ISSE risk. Conclusions: Off-label underdosed DOACs, particularly rivaroxaban, was associated with increased ISSE risk but did not decrease bleeding compared to on-label. Adherence to appropriate DOAC doses should be emphasised to achieve the best clinical outcomes for Asian patients with AF. © The Author(s), under exclusive licence to Springer Nature Switzerland AG 2024.

Considerable genetic diversity within Paragonimus heterotremus in Luang Prabang, northern Lao People's Democratic Republic

Infection, Genetics and Evolution Open Access Volume 128 March 2025
Article number 105718

Nonthapa A.; Rodpai R.; Thanchomnang T.; **Boonroumkaew P.; Sadaow L.**; Blair D.; **Intapan P.M.; Maleewong W.**; Banouvong V.; Laymanivong S.; **Sanpool O.**

Abstract

Paragonimiasis, caused by infection with lung flukes of the genus Paragonimus, remains a significant public health concern in Southeast Asia. In Lao People's Democratic Republic (Lao PDR), information on the distribution and genetic diversity of Paragonimus species is limited. This study investigated Paragonimus metacercariae in freshwater (mountain) crabs and analyzed their genetic diversity and phylogenetic relationships. Thirty-six crabs (Indochinamon sp.) were received from Xiang Ngeun and Pak Ou in Luang Prabang Province, northern Lao PDR. Partial mitochondrial 16S rRNA sequences obtained from four crabs indicated a moderately close relationship with Indochinamon ou. A total of 81 metacercariae identified morphologically as Paragonimus heterotremus were found among 13 out of the 32 crabs dissected (40.6 %). Molecular analyses targeting the ribosomal ITS2 region and mitochondrial cytochrome c oxidase subunit 1 (cox1) gene were conducted on these metacercariae. Phylogenetic analyses revealed that P. heterotremus sequences from Lao PDR clustered with those from neighboring countries—China, Myanmar, Vietnam and Thailand—suggesting potential genetic connectivity among eastern Asian populations. Haplotype-network analysis demonstrated significant genetic diversity within P. heterotremus populations from Lao PDR, separating into two distinct haplotype groups, one of which was unique to this study. This is the first report that Indochinamon sp. crabs serve as key intermediate host for a member of the P. heterotremus complex in Luang Prabang Province and highlights the parasite's genetic diversity in this region. © 2025 The Authors

Curcumin-Loaded Maltodextrin-Based Proniosomes Potentially Effective against Gemcitabine-Resistant Cholangiocarcinoma

ACS Applied Bio Materials Open Access Volume 8, Issue 1, Pages 913 - 930

Thongpon P.; Intuyod K.; Pongking T.; Priprem A.;
Chomwong S.; Tanasuka P.; Mahalapbutr P.; Suriya U.;
Vaeteewoottacharn K.; Pinlaor P.; Pinlaor S.

Abstract

Cholangiocarcinoma (CCA) or bile-duct cancer is most prevalent in Southeast Asian counties including Thailand. Patients present at an advanced stage when the cancer is often drug resistant, leading to chemotherapy failure. Curcumin has therapeutic potential with various anticancer properties. However, its effectiveness is limited by its low bioavailability, poor solubility, and instability. This study aimed to synthesize, characterize and evaluate the efficacy of curcumin-loaded maltodextrin-based proniosomes (CMPNs) to overcome the limitations of curcumin for treating gemcitabine-resistant CCA cells (KKU-213BGemR) in vitro and in vivo. Various proniosome formulations were developed and tested for their efficacy against KKU-213BGemR cells using cytotoxicity, clonogenic, migration, and invasion assays. The potential mechanism involving in cell cycle arrest, apoptosis, expression of C/EBP homologous protein (CHOP), a pro-apoptotic transcription factor, and other apoptotic markers were investigated. The results showed that nanoscale CMPNs exhibited a good curcumin loading capacity and an entrapment efficiency of over 97%, as well as good stability and permeability through porcine esophageal mucosa. CMPNs inhibited proliferation, colony formation, migration/invasion and induced apoptosis in KKU-213BGemR cells. Western blot analysis revealed CMPNs significantly increased CHOP, the cleavage products of poly(ADP-ribose) polymerase-1 (PARP-1), apoptosis-inducing factor, and caspase-3 expression in KKU-213BGemR cells. A xenograft model revealed that 62.5 mg/kg BW CMPNs significantly suppressed proliferating cell nuclear antigen and increased CHOP-mediated apoptosis, leading to significantly reduced tumor volume. In conclusion, CMPNs effectively overcome limitations of curcumin and offer an effective strategy against gemcitabine-resistant CCA via CHOP-mediated pathways. These proniosomes are promising as an alternative treatment approach for CCA. © 2025 The Authors. Published by American Chemical Society.

Current High Prevalence of Intestinal Parasitic Contamination in Fresh Vegetables in Northeast Thailand

American Journal of Tropical Medicine and HygieneVolume 112, Issue 2, Pages 314 - 318

Poochada W.; Uengchuen K.; Junggoth R.; Donprajum T.; Seesophon S.; **Sanpool O**.; Laoraksawong P.

Abstract

Although fresh vegetables are a vital source of essential nutrients and dietary fiber, they can pose a significant health risk due to contamination by intestinal parasites (IPs). The consumption of contaminated vegetables can lead to intestinal parasitic infection, which is a major public health issue, particularly in tropical and subtropical regions, where sanitation, clean water, and agricultural practices are often inadequate. Northeast Thailand, with its warm, humid climate and predominant agricultural sector, exhibits a high prevalence of IPs in humans. This study aimed to determine the prevalence of intestinal parasitic contamination in vegetables in Khon Kaen, Thailand, because of its reported high prevalence of IPs. A total of 300 samples, including cilantro, celery, Thai basil, lettuce, cucumber, Chinese kale, white cabbage, Chinese cabbage, peppermint, and yard-long beans, were collected from 10 markets across five districts in the province. Each sample was washed with 1% normal saline, shaken for 15 minutes, and allowed to sediment. The sediment was then centrifuged and examined by parasitologists under a microscope. The overall prevalence of IPs was found to be 36.0%, with Blastocystis hominis (24.7%), Strongyloides stercoralis (13.0%), and Ascaris lumbricoides (8.7%) being the most common. Peppermint showed the highest prevalence rate at 70.0%, followed by celery and Thai basil at 53.3% each. These results suggest a necessity for key health policy interventions, including appropriate health education. Sanitary measures, such as washing vegetables before consumption and washing hands after harvesting vegetables, should be encouraged among farmers, sellers, and consumers. Copyright © 2025 American Society of Tropical Medicine and Hygiene

Current Situation of Non-cleft Craniofacial Anomalies in Thailand: A Multicenter Study

Journal of Craniofacial SurgeryVolume 36, Issue 1, Pages 119 - 122

Rojvachiranonda N.; Chaithat B.; Sawasdipanich N.; Dangsomboon A.; Khwanngern K.; Sitthikamtiub W.; Kammabut K.; **Punyavong P.**; Pradabwong S.; Chichareon V.; Chansanti O.; Tawaranurak N.

Abstract

Non-cleft craniofacial anomalies significantly impact patients' lives and health care systems. This study addresses the gap in the literature concerning these anomalies. Conducted at 4 major hospitals across Thailand, the research aims to provide an overview and understand the experiences of caregivers. The authors conducted a cross-sectional descriptive study in a 3-year period involving 224 primary caregivers of young patients with non-cleft craniofacial anomalies (demographics, medical history, psychosocial aspects). The authors found the highest prevalence of anomalies in the Northern (26.8%) region and the lowest in the Western (3.1%) region. Craniosynostosis and clefts were the predominant anomalies (67.0%), with a surprising lack of family history (7%). Diagnoses were frequently established at regional hospitals (42.0%). Notably, the average outpatient visit was 18.22. A substantial portion of patients required multiple hospital stays: 65.6% with 1 to 5 stays and 9.8% with more than 5 stays. Despite frequent visits, 29% had not received necessary surgery. Of caregivers, 78% had a family income in the middle range (5000-50,000 Thai baht/mo), yet a significant proportion (59.4%) perceived their income as adequate. Their education was bachelor's and higher in only 27.2%. Although stress was common (62.1%), most caregivers (79.0%) did not consider it a burden. The study highlights the challenges faced by both patients and caregivers. It reveals a need for improved access to specialized care, more specialists, dedicated centers, and support networks. A more robust classification system is also essential. To optimize care, a comprehensive and region-specific health care approach is crucial. Copyright © 2024 Mutaz B. Habal, MD. All rights reserved.

Design of lignin-based TiO2 composite for enhanced photocatalytic activity and its applications

Environmental Technology and Innovation Open Access Volume 37 February 2025 Article number 103928

Thammasang S.; **Phanthanawiboon S.**; Theerakulpisut S.; Kamwilaisak K.

Abstract

Lignin with TiO2 necessitates careful consideration of the organic-to-inorganic ratio in order to achieve the desired functional characteristics. This study synthesized a Lignin-TiO2 hybrid material through a single-step process utilizing the Taguchi design, which significantly enhanced photocatalytic efficiency under visible light. The Lignin-TiO2 composite demonstrated improved dispersion, negative surface charge, lower bandgap energy, and reduced charge carrier recombination compared to the controls, resulting in a 2.2-fold increase in photocatalytic efficiency for the removal of methylene blue (MB) dye relative to pure TiO2. Additionally, lignin was found to be an effective inhibitor of photo-corrosion, significantly enhancing the stability of Lignin-TiO2 during 690 min of irradiation. The role of OH radicals in MB photodegradation was confirmed by the degradation of coumarin to 7-hydroxycoumarin (7-OHC). Moreover, Lignin-TiO2 displayed antimicrobial activity against S. aureus and showed potential as a filler in polyvinyl alcohol (PVA), extending the shelf life of cherry tomatoes by up to 7 days. This study presents a promising approach to enhancing visible light-active photocatalysts using renewable materials while highlighting the practical applications of the composite in environmental remediation and the preservation of agricultural products. © 2024 The Authors

Development of Antibacterial Hydrogels Based on Biopolymer Aloe Vera/Gelatin/Sodium Alginate Composited With SM-AgNPs Loaded Curcumin-Nanoliposomes

Macromolecular BioscienceVolume 25, Issue 4 April 2025
Article number 2400504

Saenchoopa A.; Plaeyao K.; Talodthaisong C.; Thet Tun W.S.; Nasomjai P.; Lapmanee S.; Somsakeesit L.-O.; Hutchison J.A.; Kulchat S.

Abstract

To address the rising prevalence of bacterial infections and the need for innovative therapeutic solutions, this study has developed a novel antibacterial hydrogel composite composed of Aloe vera, gelatin, sodium alginate, and Sterculia monosperma-silver nanoparticles (SM-AgNPs) loaded curcumin-nanoliposomes (NLPs). The aloe vera/gelatin/sodium alginate hydrogels (AGS) are prepared using different weight ratios of Aloe vera, gelatin, and sodium alginate, aiming to optimize mechanical properties and biocompatibility for biomedical applications. The incorporation of SM-AgNPs and curcumin-loaded NLPs enhanced the hydrogels' antibacterial properties. Characterizations of the hydrogels are performed by using Fourier-transform infrared spectroscopy, thermogravimetric analysis, and scanning electron microscopy. Additional examinations, such as water absorption analysis, rheology measurements, thermal stability, and injectability, along with pH and temperature responsiveness, are also conducted. The AGS-3 hydrogel formulation, with a 1:5:3 ratio of Aloe vera to gelatin to sodium alginate, exhibited significant performance in all tests, making it suitable for further experiments. Furthermore, antimicrobial activity assays showed that AGS hydrogels containing SM-AgNPs/NLP composites effectively inhibited the growth of both gram-positive Staphylococcus aureus (S.aureus) and gram-negative Escherichia coli (E.coli) bacteria. These results indicate that the SM-AgNPs/NLP-AGS hydrogel is a promising material for biomedical applications including wound healing, infection prevention, and targeted drug delivery. © 2025 Wiley-VCH GmbH.

Development of Herbal Ultrasound Gel Prototype from Zingiber cassumunar Roxb., Curcuma longa L. and Zingiber officinale Roscoe for Antioxidant and Anti-Inflammation

Natural and Life Sciences Communications Volume 24, Issue 1 January-March 2025 Article number e2025011

Thiraphatthanavong P.; Ohn-On W.; Kaewbutra S.; Tongthong K.; Rattanachompu P.; Panmuesng N.; Khampaenjiraroch B.; **Phandech K.**

Abstract

This research aimed to determine the total phenolic content (TPC), total flavonoid content (TFC), and antioxidant activity of phlai, turmeric, ginger and combined extract of phlai, turmeric, and ginger at recipe 1:2:2 (PTG). In addition, the formula of herbal ultrasound gel for antioxidant and anti-inflammatory properties was developed. The TPC, flavonoid, antioxidant and anti-inflammation were investigated by using the Folin-Ciocalteu method, flavonoid, DPPH, ABTS and nitric oxide (NO) scavenging assay. The PTG extract was tested for the phytochemicals by GC-MS technique. The microbial contamination standard of herbal ultrasound gel prototype was determined. The result show that the PTG extract has the TPC and flavonoid at 105.11 ± 16.93 mg GAE/g extract and 63.58 ± 2.29 mg QE/g extract, respectively. Moreover, the DPPH and ABTS assay show that PTG extract has the half maximal inhibitory concentration (IC50) at 0.82 ± 0.11 and 0.98 ± 1.56 mg/mL, respectively. In addition, PTG extract has a high percentage of NO inhibition at 53.38 ± 0.16. Furthermore, the GC-MS method found that PTG extract has 7 active ingredients. The highest amount of phytochemical is AR-turmerone. The safety assessment for external use found that the herbal ultrasound gel prototype product passed standard criteria for microbial contamination at the laboratory level. To conclude, the PTG extract has a synergistic effect and a high ability to act as an antioxidant and anti-inflammation. Moreover, the PTG herbal ultrasound gel has a microbial contamination safety to use. Therefore, the prototype herbal ultrasound gel product may be further developed into health products to treat pain and inflammation efficiently in clinical practice. © 2025, Chiang Mai University. All rights reserved.

Differences in Characteristics and Outcome After Hepatic Resection Among Various Types of Mass-Forming Primary Liver Cancer

Indian Journal of Surgical Oncology2025

Wannasri T.; Luvira V.; Chakuttrikul W.; Titapun A.; Srisuk T.; Sathitkarnmanee E.; Pugkhem A.; Pairojkul C.

Abstract

Primary liver tumors vary in carcinogenesis. It is well known that these tumors have two carcinogenic pathways: small and large duct pathogenesis. Small duct pathogenesis is always present as mass-forming tumors. Large duct etiology tumors can be periductal infiltration or intraductal growth with mass-forming appearing in the late stage. Our objective is to analyze and compare the characteristics and outcomes of patients with mass-forming lesions in the liver based on their pathogenesis. A retrospective analysis was undertaken from January 2012 to December 2017. We analyzed the 222 medical records of all patients who had curative-intent hepatic resection for mass-forming, pathologically proven primary liver cancer. Analyses included clinical, pathological, and survival characteristics. Hepatocellular carcinoma (HCC) was the most prevalent tumor type (43.4%), followed by papillary cholangiocarcinoma (CCA) (27.6%), tubular CCA (22.6%), adenosquamous carcinoma (ASC) (4.1%), and small duct, mass-forming cholangiocarcinoma (SD-CCA) (2.3%). HCC and SD-CCA patients had a considerably greater survival rate than CCA and ASC patients. HCC, SD-CCA, papillary CCA, tubular CCA, and ASC had median survivals of 1373, 1180, 591, 447, and 205 days. Tumors in large duct pathogenesis are usually associated with increased rates of hilar invasion, lymph node involvement, and positive surgical margin. ASC is associated with a significantly poorer prognosis. Small duct pathogenesis tumors exhibit several shared characteristics and demonstrate a more favorable prognosis. Tumors in large duct pathogenesis are usually associated with increased rates of hilar invasion, lymph node involvement, and positive surgical margin. ASC is associated with a significantly poorer prognosis. © The Author(s), under exclusive licence to Indian Association of Surgical Oncology 2025.

Diversity and antimicrobial resistance profiles of Mycobacterium avium complex clinical isolates in Thailand based on whole genome comparative analysis

Scientific Reports Open Access Volume 15, Issue 1 December 2025
Article number 772

Sawaswong V.; Wongjarit K.; Petsong S.; Yuliani Y.; Somsukpiroh U.; **Faksri K.**; Forde T.; Payungporn S.; Rotcheewaphan S.

Abstract

The Mycobacterium avium complex (MAC) is a group of closely related nontuberculous mycobacteria that can cause various diseases in humans. In this study, genome sequencing, comprehensive genomic analysis, and antimicrobial susceptibility testing of 66 MAC clinical isolates from King Chulalongkorn Memorial Hospital, Bangkok, Thailand were carried out. Whole-genome average nucleotide identity (ANI) revealed the MAC species distribution, comprising 54 (81.8%) M. intracellulare, 6 (9.1%) M. avium, 5 (7.6%) M. colombiense, and 1 (1.5%) M. timonense. Phylogenetic analysis revealed a high diversity of M. intracellulare isolates and their evolutionary relationships which could be divided into 2 subspecies: M. intracellulare subsp. intracellulare and M. intracellulare subsp. chimaera. In addition, M. intracellulare subsp. chimaera mostly clustered in the distinct clades separated from M. intracellulare strains originating from other countries. Most MAC isolates were resistant to linezolid and moxifloxacin based on phenotypic antimicrobial susceptibility testing. Mutations within rrl gene associated with clarithromycin resistance were detected in M. intracellulare and M. colombiense. The pan-genome analysis presented clade-specific proteins for M. intracellulare, such as PE and PPE protein families. This study provides valuable insights into the genomic diversity and antimicrobial resistance profiles of MAC isolates circulating in Thailand, which are useful for clinical management, guiding the development of targeted diagnostic, and treatment strategies for MAC infections. © The Author(s) 2024.

Durvalumab with or without bevacizumab with transarterial chemoembolisation in hepatocellular carcinoma (EMERALD-1): a multiregional, randomised, double-blind, placebo-controlled, phase 3 study

The Lancet Volume 405, Issue 10474, Pages 216 - 23218 January 2025

Sangro B.; Kudo M.; Erinjeri J.P.; Qin S.; Ren Z.; Chan S.L.; Arai Y.; Heo J.; Mai A.; Escobar J.; Lopez Chuken Y.A.; Yoon J.-H.; Tak W.Y.; Breder V.V.; **Suttichaimongkol T.**; Bouattour M.; Lin S.-M.; Peron J.-M.; Nguyen Q.T.; Yan L.; Chiu C.-F.; Santos F.A.; Veluvolu A.; Thungappa S.C.; Matos M.; Żotkiewicz M.; Udoye S.I.; Kurland J.F.; Cohen G.J.; Lencioni R.

Abstract

Background: Transarterial chemoembolisation (TACE) is standard of care for patients with unresectable hepatocellular carcinoma that is amenable to embolisation; however, median progression-free survival is still approximately 7 months. We aimed to assess whether adding durvalumab, with or without bevacizumab, might improve progression-free survival. Methods: In this multiregional, randomised, double-blind, placebo-controlled, phase 3 study (EMERALD-1), adults aged 18 years or older with unresectable hepatocellular carcinoma amenable to embolisation, an Eastern Cooperative Oncology Group performance status of 0 or 1 at enrolment, and at least one measurable intrahepatic lesion per modified Response Evaluation Criteria in Solid Tumours (RECIST) were enrolled at 157 medical sites including research centres and general and specialist hospitals in 18 countries. Eligible patients were randomly assigned (1:1:1), stratified by TACE method, region, and portal vein invasion, using an interactive voice response or web response system, to TACE plus either durvalumab plus bevacizumab (1500 mg intravenous durvalumab once every 4 weeks, then 1120 mg durvalumab plus 15 mg/kg intravenous bevacizumab once every 3 weeks), durvalumab plus placebo (same regimen using placebo instead of bevacizumab), or placebo alone (same regimen using placebo instead of durvalumab and instead of bevacizumab). Participants, investigators, and those assessing outcomes were masked to treatment assignment until data analysis. The primary endpoint was progression-free survival, by blinded independent central review (BICR), and per RECIST version 1.1, with durvalumab plus bevacizumab versus placebo alone in the intention-to-treat population (ITT; ie, all participants assigned to treatment). Key secondary endpoints were progression-free survival by BICR per RECIST version 1.1 with durvalumab plus placebo versus placebo alone, overall survival, and time to deterioration in select patient-reported outcomes. Participants continue to be followed up for overall survival, and overall survival and patient-reported outcomes will be reported in a later publication. Safety was assessed in the safety analysis set, which included all participants assigned to treatment who received any study treatment (ie, any durvalumab, bevacizumab, or placebo) by treatment received. This study is registered with ClinicalTrials.gov, NCT03778957, and is closed to accrual. Findings: Between Nov 30, 2018, and July 19, 2021, 887 patients were screened, of whom 616 were randomly assigned to durvalumab plus bevacizumab (n=204), durvalumab plus placebo (n=207), or placebo alone (n=205; ITT population). Median age was 65·0 years (IQR 59·0–72·0), 135 (22%) of 616 participants were female, 481 (78%) were male, 375 (61%) were Asian, 176 (29%) were White, 22 (4%) were American Indian or Alaska Native, nine (1%) were Black or African American, one (<1%) was native Hawaiian or other Pacific Islander, and 33 (5%) were other races. As of data cutoff (Sept 11, 2023) median follow-up for progression-free survival was 27·9 months (95% CI 27·4–30·4), median progression-free survival was 15·0 months (95% CI 11·1–18·9) with durvalumab plus bevacizumab, 10·0 months (9·0–12·7) with durvalumab, and 8·2 months (6·9–11·1) with placebo. Progression-free survival hazard ratio was 0·77 (95% CI 0·61–0·98; two-sided p=0·032) for durvalumab plus bevacizumab versus placebo, and 0·94 (0·75–1·19; two-sided p=0·64) for durvalumab plus placebo versus placebo. The most common maximum grade 3–4 adverse events were hypertension in participants who received durvalumab and bevacizumab (nine [6%] of 154 participants), anaemia in participants who received durvalumab and placebo (ten [4%] of 232 participants), and post-embolisation syndrome in participants who received placebo alone (eight [4%] of 200 participants). Study treatment-related adverse events that led to death occurred in none of 154 participants who received durvalumab and bevacizumab, three (1%) of 232 who received durvalumab and placebo (n=1 for arterial haemorrhage, liver injury, and multiple organ dysfunction syndrome), and three (2%) of 200 who received placebo alone (n=1 for oesophageal varices haemorrhage, upper gastrointestinal haemorrhage, and dermatomyositis). Interpretation: Durvalumab plus bevacizumab plus TACE has the potential to set a new standard of care. With additional follow-up of the EMERALD-1 study, future analyses, including the final overall survival data and patient-reported outcomes, will help to further characterise the potential clinical benefits of durvalumab plus bevacizumab plus TACE in hepatocellular carcinoma amenable to embolisation. Funding: AstraZeneca. © 2025 Elsevier Ltd

Dynamics and diversity of vaginal microbiota in bacterial vaginosis among Thai patients treated with metronidazole

Journal of Infection and Public Health Open Access Volume 18, Issue 2 February 2025 Article number 102646

Sirichoat A.; Buppasiri P.; Faksri K.; Lulitanond V.

Abstract

Background: Bacterial vaginosis (BV) is a significant global public health issue due to its high recurrence rate and association with various adverse health effects. Understanding the composition and dynamics of the vaginal microbiota (VMB) is essential for better understanding of vaginal health and for developing effective strategies to improve BV management. The study aimed to determine the composition and diversity of the VMB in Thai women with BV before and after metronidazole (MTZ) treatment, and in healthy women. Methods: Vaginal samples were collected from 20 women with BV (each sampled at three time points: pre-MTZ treatment, post-MTZ treatment and follow-up) and from 20 healthy women (each sampled once). The VMB was analyzed using 16S rRNA gene sequencing via next-generation sequencing on the Ion Torrent PGM platform. Results: The VMB in Thai women with BV was predominantly composed of Gardnerella, Prevotella and Fannyhessea (formerly Atopobium), while Lactobacillus dominated in healthy controls. Women with BV exhibited greater bacterial diversity and higher prevalence of anaerobic species compared to healthy women. There was higher diversity and abundance in the VMB from pre-MTZ samples, while post-MTZ and follow-up samples displayed lower diversity. In the follow-up stage, the VMB was divided into two subgroups: the larger cured subgroup, which shifted towards a Lactobacillus-dominated composition resembling healthy controls, and the small treatment-failure subgroup, which exhibited a Gardnerella-dominated profile similar to pre-MTZ. Conclusions: This study provides valuable insights into the structure and dynamics of the VMB in Thai women with BV before and after treatment, offering potential markers for predicting treatment outcomes. © 2025 The Author(s)

Early Inflatable penile prosthesis implantation offers superior outcomes compared to delayed insertion following ischemic priapism: a narrative review

International Journal of Impotence Research Open Access Volume 37, Issue 1, Pages 27 - 32January 2025 Article number 101946

Abou Chawareb E.; Hammad M.A.M.; Barham D.W.; **Lumbiganon S.**; Azad B.K.; Osmonov D.; Yafi F.A.

Abstract

Ischemic priapism is a urological emergency which may lead to irreversible erectile dysfunction. One of the accepted treatments is penile prosthesis implantation. Given the scarcity of studies directly comparing timing of penile prosthesis insertion after ischemic priapism, consensus remains elusive. We aim to compare different studies in the literature concerning advantages and disadvantages of early versus delayed inflatable penile prosthesis following ischemic priapism. We analyzed 8 articles that investigated immediate and delayed inflatable penile prosthesis placement after ischemic priapism. Early inflatable penile prosthesis placement is associated with better outcomes, including pain relief, priapism resolution, penile shortening prevention, and quicker sexual activity resumption. However, it still carries a high risk of complications like edema, infection, and distal perforations. Delayed inflatable penile prosthesis insertion poses surgical challenges due to the potential for extensive corporal fibrosis. Comparative analyses have shown elevated complication rates in patients with ischemic priapism who undergo delayed inflatable penile prosthesis insertion, as opposed to those with early insertion. In studies reporting complications rates, the total complication rate in the early group was 3.37%, significantly lower than the delayed group (37.23%). Most studies support the superiority of early inflatable penile prosthesis placement following ischemic priapism over delayed placement. Further research is, however, needed to establish a global consensus on timing of prosthesis insertion. © The Author(s) 2024.

EBV-Induced LINC00944: A Driver of Oral Cancer Progression and Influencer of Macrophage Differentiation

Cancers Open Access Volume 17, Issue 3 February 2025 Article number 491

Srisathaporn S.; Ekalaksananan T.; Heawchaiyaphum C.; Aromseree S.; Maranon D.G.; Altina N.H.; Nukpook T.; Wilusz J.; **Pientong C.**

Abstract

Oral squamous cell carcinoma (OSCC) is a significant global health concern. Epstein–Barr virus (EBV) infection as well as long non-coding RNA (lncRNAs) associated EBV infection, have been linked to OSCC development and are known to influence cancer progression. LINC00944 is associated with various cancers and immune cells, but its role in oral cancer remains underexplored. This study investigated the role of EBV-induced LINC00944 in OSCC and its impact on the tumor microenvironment. The LINC00944 expression was analyzed from a database of head and neck squamous cell carcinoma (HNSCC) tissues, and its expression in EBV-positive and EBV-negative OSCC cell lines was examined via qRT-PCR. We overexpressed LINC00944 in SCC25 and ORL-48T oral cancer cell lines and evaluated its impact on migration and invasion ability using wound healing and transwell experiments. Additionally, we studied its influence on macrophage differentiation. The results showed that LINC00944 expression was higher in HNSCC than in normal tissues and was linked to EBV-positive OSCC cell lines. LINC00944 overexpressed-OSCC cell lines significantly increased cellular motility and invasiveness. Additionally, LINC00944 was secreted in a cultured medium, delivered to macrophages, and promoted macrophage differentiation into the M1 subtype. Predicted interactions suggested that LINC00944 targets miRNAs that regulate NFKB1 and RELA. In conclusion, EBV-induced LINC00944 contributes to OSCC progression by enhancing tumor cell migration, invasion, and macrophage differentiation, potentially regulating these processes through NFKB1 and RELA. These findings provide valuable directions for LINC00944's future studies on its mechanisms and suggest that it could be a target of study in EBV-associated OSCC. © 2025 by the authors.

Elevations in D-dimer levels in patients with Plasmodium infections: a systematic review and meta-analysis

Scientific Reports Open Access Volume 15, Issue 1 December 2025
Article number 858

Sukati S.; Kotepui K.U.; Masangkay F.R.; Tseng C.-P.; Mahittikorn A.; Anabire N.G.; Wilairatana P.; Wangdi K.; Majima H.J.; **Suwannatrai A.T.**; Klangbud W.K.; Mala W.; Rattanatham R.; Kotepui M.

Abstract

D-dimer, a byproduct of cross-linked fibrin degradation, arises during the fibrinolysis process, breaking down blood clots in circulation. This systematic review and meta-analysis aimed to synthesize evidence of D-dimer alteration in people with malaria, including variations in disease severity. The systematic review was registered in PROSPERO with registration number CRD42024528245. Searches were performed in EMBASE, Scopus, MEDLINE, PubMed, Nursing & Allied Health Premium, and Journals@Ovid on March 25, 2024, to identify original studies that reported D-dimer in patients with Plasmodium infections. The methodological quality of the included studies was assessed using the Joanna Briggs Institute critical appraisal tools. Thematic synthesis and meta-analysis were carried out to synthesize the findings of the included studies. A total of 24 studies were included in the review out of 1,115 records identified. According to the evaluated studies, patients with Plasmodium infections had higher D-dimer levels. A meta-analytic evaluation of D-dimer levels between patients with and without Plasmodium infections revealed a significant elevation of D-dimer in patients with infection, with high heterogeneity (SMD = 2.11, 95% CI = 0.59; 3.64, P = 0.007, I^2 = 98%, 6 studies, 1,418 participants, random-effects model). However, no significant alterations in D-dimer levels were observed following the comparison between patients with severe and uncomplicated malaria, also with high heterogeneity (SMD = 2.54, 95% CI = -1.60; 6.68, P = 0.23, I^2 = 99%, 3 studies, 595 participants). The findings suggested that malaria patients have significantly higher D-dimer levels compared to non-malarial individuals. However, there was no significant difference in D-dimer levels between severe and uncomplicated malaria cases. These results highlight the potential of D-dimer as a biomarker for Plasmodium infections, but its clinical utility requires further validation. Future studies should prioritize standardizing D-dimer measurement methods, including assay types, threshold values, and sample types, to ensure consistent and reliable application in clinical settings. Additionally, large, multicentric cohorts are needed to establish robust guidelines for incorporating D-dimer into malaria management practices. Further research should also explore the role of D-dimer in the pathogenesis of Plasmodium infections to deepen our understanding of their clinical significance. © The Author(s) 2025.

Enhancing betalains production and antioxidant activity in Celosia argentea cell suspension cultures using biotic and abiotic elicitors

Scientific Reports Open Access Volume 15, Issue 1 December 2025
Article number 376

Mueangnak K.; Kitwetcharoen H.; Thanonkeo S.; Klanrit P.; Apiraksakorn J.; **Klanrit P.**; Klanrit P.; Thanonkeo P.

Abstract

Celosia argentea is a plant known for producing bioactive compounds, including betalains, which possess various biological and pharmaceutical properties. This study aimed to investigate the effect of biotic and abiotic elicitors on betalains production and their antioxidant activity in cell suspension cultures of C. argentea. Various concentrations of chitosan, yeast extract, salicylic acid, methyl jasmonate, copper sulfate (CuSO4), and cobalt chloride (CoCl2) were evaluated. The results revealed that chitosan, salicylic acid, methyl jasmonate, and CuSO4 significantly improved betalains production in the cell suspension cultures. Among these elicitors, chitosan at 5.0 mg/L and CuSO4 at 6.4 µM were the most effective in enhancing betalains production, yielding the highest concentrations of 4.65 and 4.99 mg/g dry weight, respectively. Notably, the betalains derived from the elicitor-treated cultures exhibited greater antioxidant activity compared to the control. These findings suggest that chitosan and CuSO4 are promising elicitors for sustainable in vitro production of betalains from C. argentea cell suspension cultures on a commercial scale, owing to their ability to enhance betalains production and antioxidant activity. © The Author(s) 2024.

Enhancing kombucha functionality: Utilizing dried pineapple peels and cores as an alternative ingredient for improved antioxidant and antimicrobial properties

LWT Open Access Volume 21615 January 2025 Article number 117358

Kitwetcharoen H.; Chamnipa N.; Thanonkeo S.; Klanrit P.; Tippayawat P.; **Klanrit P.**; Klanrit P.; Yamada M.; Thanonkeo P.

Abstract

In recent years, a wide variety of kombucha products have been developed from tea leaves blended with various raw materials. This study explores the potential of using pineapple byproducts, specifically dried pineapple peels and cores (dPPC), as an alternative ingredient to blend with black tea for kombucha production. The dPPC contains not only high sugar content but also exhibits high levels of total phenolics (75.02 mg GAE/L) and flavonoids (5.53 mg QE/L), comparable to black tea leaves. Kombucha products made from black tea blended with dPPC demonstrated greater total phenolic content (TPC) and total flavonoid content (TFC) compared to traditional black tea-based kombucha (control). These kombucha products also possessed a wider variety of volatile organic compounds (VOCs) and exhibited enhanced antioxidant and antimicrobial activities against various microorganisms. The KF5 kombucha fermentation formulation consisting of 20% (v/v) sweetened black tea and 80% (v/v) dPPC extract yielded optimal results, demonstrating the highest antioxidant and antimicrobial activities. These findings suggest that dPPC is a promising alternative ingredient for producing functional kombuchas with enhanced in vitro antioxidant and antimicrobial properties, potentially adding value to pineapple processing waste. © 2025 The Authors

Enhancing solubility and stability of piperine using β-cyclodextrin derivatives: computational and experimental investigations

Journal of Biomolecular Structure and Dynamics Volume 43, Issue 5, Pages 2596 - 2609

Ali S.; Saokaew P.; Aman A.; Todsaporn D.; Sanachai K.; Krusong K.; Hannongbua S.; Wolschann P.; **Mahalapbutr P.**; Rungrotmongkol T.

Abstract

Piperine (PP), a natural alkaloid found in black pepper, possesses significant bioactivities. However, its use in pharmaceutical applications is hindered by low water solubility and susceptibility to UV light degradation. To overcome these challenges, we investigated the potential of β-cyclodextrin (βCD) and its derivatives with dimethyl (DMβCD), hydroxy-propyl (HPβCD) and sulfobutyl-ether (SBEβCD) substitutions to enhance the solubility and stability of PP. This study employed computational and experimental approaches to examine the complexation between PP and βCDs. The results revealed the formation of two types of inclusion complexes: the P-form and M-form involving the insertion of piperidine moiety and the methylene-di-oxy-phenyl moiety, respectively. These complexes primarily rely on van der Waals interactions. Among the three derivatives, the PP/SBEβCD complex exhibited the highest stability followed by HPβCD, as attributed to maximum atom contacts and minimal solvent accessibility. Solubility studies confirmed the formation of inclusion complexes in a 1:1 ratio. Notably, the stability constant of the inclusion complex was approximately two-fold higher with SBEβCD and HPβCD compared to βCD. The DSC thermograms provided confirmation of the formation of the inclusion complex between the host and guest. These findings highlight the potential of βCD derivatives to effectively encapsulate PP, improving its solubility and presenting new opportunities for its pharmaceutical applications. © 2024 Informa UK Limited, trading as Taylor & Francis Group.

Enhancing the Thai Film Industry through Virtual Learning: A Sustainable Approach to Language Skill Development and Soft Power Expansion

Journal of Ecohumanism Volume 4, Issue 1, Pages 230 - 239

Piayura O.; **Boonmas T.**; Wongphongkham N.; Sae-Joo P.; Narongchai W.; Wongphongkham H.; Promphakping B.

Abstract

In an era of globalization, countries and people are progressively interconnected with soft power playing a crucial role in expanding influence through collaboration and cultural exchange. The Thai film industry, despite its global recognition, encounters challenge due to limited English language proficiency among its professionals, which hampers its potential for international engagement and actions. This study intends a virtual learning model designed to enhance language skills and support the growth of soft power within the Thai film industry. Employing technologies such as the Metaverse, the model integrates learning across all stages of film production—pre-production, production, and post-production. Lining up with SDG 4 and national policies, the study adopts an action research approach to gauge the impact of this model on industry professionals. Ultimately, this research aims to provide a sustainable framework for developing language skills and flourishing Thailand's soft power, driving the future growth of the Thai film industry on the macro stage. © 2025, Creative Publishing House. All rights reserved.

Evaluation of a self-screening tool and patient alert cards to help patients identify and manage severe adverse drug reactions

International Journal of Clinical Pharmacy2025 Article number e73166

Srisuriyachanchai W.; **Foocharoen C.; Mahakkanukrauh A.**; Cox A.R.; Jarernsiripornkul N.

Abstract

Background: Few studies have examined the use of self-screening tools and patient alert cards (PAC) for screening adverse drug reactions (ADRs). Aim: To evaluate the benefits of self-screening tools and PAC for screening ADRs. Method: A prospective study of outpatients was conducted at a tertiary care teaching hospital. The sample included patients over 18 years of age who were currently taking one of four prescription medicines—methotrexate, sulfasalazine, cyclosporine, or prednisolone. A self-screening tool was distributed to patients in either hard copy or on-line format depending on patient preference. Simple random sampling was used to assign patients to either receive a PAC or not. Results: A total of 922 self-screening tools were distributed with 709 returned (71.5%). Over half (n = 388) of the respondents reported a total of 3437 symptoms that they credited to their medication. The most commonly reported symptom was angioedema (15.8%). The majority of patients (76.7%) used the temporal relationship between the onset of symptoms and the administration of the drug to decide if their ADR was associated with the drug and this proportion was higher in respondents who selected the online self-screening tool (70.7% and 83.2%, p = 0.040). Half of the patients reported high satisfaction with their PACs. Conclusion: Providing patients with a self-screening tool and a PAC supported patients to report more ADRs compared to rates for spontaneous reporting alone. We propose that they should be provided to all patients to increase ADR reporting and to encourage HCPs to provide drug information, thereby improving patient medication safety. © The Author(s), under exclusive licence to Springer Nature Switzerland AG 2025.

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Evaluation of an Innovative Rapid Diagnostic Test for Human Strongyloidiasis to Detect Specific IgG Antibody in Whole-Blood Samples

American Journal of Tropical Medicine and HygieneVolume 112, Issue 3, Pages 571 - 576

Boonroumkaew P.; Janwan P.; Sadaow L.; Rodpai R.; **Sanpool O.**; Thanchomnang T.; **Intapan P.M.; Maleewong W.**

Abstract

Human strongyloidiasis is an important intestinal parasitic disease that affects public health globally and is transmitted through contact with infective larvae on contaminated soil. Immunocompromised hosts can experience hyperinfection, which can lead to fatal systemic strongyloidiasis. Here, an innovative point-of-care (POC) test kit, the strongyloidiasis immunochromatographic blood test (the NIE-SsIR whole-blood ICT) kit is described. The kit was used to detect anti-Strongyloides IgG antibody in whole-blood samples (WBSs) instead of serum to diagnose strongyloidiasis. The kit is based on a mixture of two recombinant Strongyloides stercoralis protein antigens (NIE and SsIR) and colloidal-gold-labeled conjugates of anti-human IgG antibody to evaluate diagnostic values with simulated and fresh anticoagulated WBSs. The NIE-SsIR whole-blood ICT kit showed potentially high diagnostic values with simulated WBSs, obtained by spiking patients' sera with red blood cells. The sensitivity, specificity, and positive and negative predictive values were 93.0%, 93.7%, 88.6%, and 96.2%, respectively, at the prevalence of disease simulated under the laboratory conditions of 34.5%. In addition, 18 of 20 fresh anticoagulated WBSs from strongyloidiasis cases were positive, and all 15 WBSs from healthy volunteers were negative. The NIE-SsIR whole-blood ICT kit is a simple and convenient POC testing tool and can possibly be used with fingerstick blood samples, thereby not requiring the drawing of venous blood and separation of the serum. The NIE-SsIR whole-blood ICT kit can assist clinical diagnosis in remote areas and field settings without sophisticated equipment. Copyright © 2025 American Society of Tropical Medicine and Hygiene.

Evaluation of HMGB1 Expression as a Clinical Biomarker for Cholangiocarcinoma

Cancer Genomics and Proteomics Open Access Volume 22, Issue 1, Pages 81 - 89January 2025

Amontailak S.; **Titapun A.**; Jusakul A.; **Thanan R.**; Kimawaha P.; Jamnongkan W.; **Thanee M.**; Sirithawat P.; Haohan S.; Techasen A.

Abstract

Background/Aim: Cholangiocarcinoma (CCA) is an epithelial malignancy that is most prevalent in Southeast Asia, particularly in the northeast of Thailand. Identifying and establishing specific biomarkers of CCA is crucial for ensuring accurate prognosis and enabling effective treatment. High-mobility group box 1 (HMGB1) is a damage-associated molecular pattern (DAMP) molecule that can be released by dead or injured cells and is associated with tumor progression. This study aimed to investigate the expression levels of HMGB1 in CCA. Materials and Methods: The clinical significance of HMGB1 levels was assessed by examining their correlation with patients' clinicopathological data. A bioinformatics analysis was conducted to examine HMGB1 mRNA expression and perform survival analysis. The expression levels of 137 tissue cases were evaluated using the immunohistochemical technique, whereas the serum levels of 31 cases were evaluated using indirect ELISA. Results: The GEPIA analysis demonstrated that HMGB1 exhibited elevated mRNA expression in CCA compared to the normal group. Immunohistochemical staining revealed that HMGB1 expression was primarily localized in the nucleus. High HMGB1 expression was observed in 57.6% of tissue samples, while low expression was detected in 42.4%. There was a significant positive correlation between high HMGB1 expression and the extrahepatic type of CCA as well as lymph node metastasis. The measurement of HMGB1 levels were assessed using indirect ELISA in 31 CCA serum samples, where 51.6% exhibited elevated concentrations of HMGB1. Elevated serum HMGB1 levels were significantly associated with advanced tumor stages and high levels of bilirubin levels. Conclusion: HMGB1 in both tissue biopsies and blood serum shows potential as a predictive biomarker in CCA patients. These biomarkers could form the basis for facilitating more effective treatment planning. © 2025 The Author(s).

Evidence-Based Anatomical Terminology in Dentistry Developed by a Consortium of Experts

Clinical Anatomy Volume 38, Issue 3, Pages 374 - 406 April 2025

Iwanaga J.; Kabak S.L.; He P.; Hamada Y.; Kikuta S.; Takeshita Y.; **Samrid R.**; Berkban T.; Kitagawa N.; Wada J.; Toriumi T.; Matsushita Y.; Ibaragi S.; Hur M.-S.; Kim H.-J.

Abstract

This article aimed to develop evidence-based anatomical terminology in dentistry agreed upon by experts in multiple fields and ultimately to bridge anatomy and clinical dentistry. A comprehensive list of dental anatomical terminology was detailed in table format, and specific terms of interest were highlighted with their respective literature review. The presence of teeth is a unique feature of the oral cavity where dental professionals work. Dentistry is a highly specialized field focusing on preserving the health of dentition and its supporting and surrounding structures. Thus, “teeth” and “mouth” related anatomical terms must be very specialized for dentistry. Many of the terms highlighted were clinical dental or alveolar-related terms that were not clearly established in the general anatomical terminology. The authors hope the evidence-based anatomical terminology in dentistry developed by a consortium of experts will be generally accepted worldwide and ultimately bridge the fields of anatomy and clinical dentistry. © 2025 American Association of Clinical Anatomists and British Association of Clinical Anatomists.

Examining Burnout Among Intern Physicians During the COVID-19 Pandemic: Insights and Solutions from Qualitative Research

Healthcare (Switzerland) Open Access Volume 13, Issue 3 February 2025
Article number 335

Surawattanasakul V.; Kiratipaisarl W.; Phetsayanavin V.; **Pholvivat C.**; Auernaruemonsuk N.; Lamlert C.; Soonthornvinit W.; Hengboriboon L.; Siviroj P.

Abstract

Background/Objectives: The extensive exposure of physicians to the COVID-19 pandemic has contributed to occupational stress and burnout in their daily lives. This study aimed to explore the lived experiences of intern physicians who experienced burnout during the COVID-19 pandemic and to identify potential solutions to enhance clinical practices in future pandemics. Methods: This study employed a qualitative, phenomenological study utilizing in-depth interviews. The participants were 19 first-year intern physicians from public hospitals in Thailand, selected through a purposeful sampling approach who had experienced burnout. Semi-structured interviews were conducted face-to-face and via online platforms. A thematic narrative analysis approach was used. Results: Phenomenological explorations included two parts: the first explored physicians' workplace conditions while providing patient care, and the second focused on their proposed solutions for policy changes in clinical practices and hospital management. Four main themes in the first part were derived: (1) emotional suffering and burnout; (2) engaging with a high-intensity workplace; (3) hostile work environments; and (4) deterioration of relationships with staff and colleagues. The second part identified three main themes: (1) changes in policy of clinical practices; (2) effective hospital management; and (3) building interpersonal skills. Conclusions: The COVID-19 pandemic has exacerbated challenges faced by intern physicians, such as high-pressure working conditions, deteriorated relationships with colleagues, and ineffective management, all of which contribute to burnout. These challenges require targeted policy changes in clinical practices, effective hospital management, and building interpersonal skills. Recommendations include improved clinical practices, increased academic support, comprehensive orientation programs, effective communication, teamwork assistance, stress management, and transforming organizational culture to value physicians during internships. © 2025 by the authors.

Excess deaths from all-causes mortality in children following the discontinuation of the COVID-19 policy in Thailand

BMC Public Health Open Access Volume 25, Issue 1 December 2025
Article number 224

Sitthikarnkha P.; Niamsanit S.; Techasatian L.; Saengnipanthkul S.; Uppala R.

Abstract

BACKGROUND: The emerging COVID-19 pandemic impacted excess mortality in adults. However, limited information is available about the number of children who died during and after the discontinuation of COVID-19 policies in Thailand. This study aimed to assess the excess mortality in Thai children during and after the discontinuation of COVID-19 policies in Thailand. METHOD: We obtained data on all-cause mortality among children from birth until 15 years of age from the Thai Bureau of Registration Administration (BORA) between January 2015 and December 2023. Based on WHO methodology, the negative binomial distribution model was used to calculate expected mortality. The excess mortality was calculated by taking the difference between the actual all-cause and expected mortality and presented as a P-score. RESULTS: There were 81,510 all-cause deaths in children during the study period. Males were more affected than females, accounting for 60.5% of all deaths. Children younger than one year of age had the highest mortality rate (37,069 deaths, 45.5%). Of these, the number of child deaths during and after the COVID-19 pandemic were 20,555 and 9,924, respectively. During the COVID-19 pandemic, the average monthly excess mortality decreased from January 2020 to September 2022 when surveillance measures were in place. However, once the national surveillance measures ended in October 2022, excess mortality experienced a significant increase, with a P-score of 13.0%. The highest monthly average P-score for children aged 3 years, particularly in October 2022. CONCLUSIONS: The all-cause mortality of children in Thailand during the COVID-19 pandemic was significantly reduced. However, following the pandemic, mortality rates appear to have increased, particularly among children aged 2 to 3 years. It is crucial to investigate the causes of these post-pandemic excess deaths to better prepare for future pandemics. © 2025. The Author(s).

Excess mortality due to COVID-19 in Thailand between the pandemic and post-pandemic periods

Scientific Reports Open Access Volume 15, Issue 1December 2025
Article number 957

Dul-amnuay A.; **Peansukwech U.**; Hanapun C.; Sharma A.

Abstract

The coronavirus disease 2019 (COVID-19) pandemic had a significant effect on mortality rates worldwide, with Thailand being no exception. Gaining insights into the impact of pandemic-related mortality is essential for assessing its broader consequences on public health. This study aimed to analyze excess deaths during the pandemic (January 1, 2020-September 30, 2022) and post-pandemic period (October 2022-December 2023) at regional and national levels in Thailand. Expected deaths were estimated using a negative-binomial model, utilizing 2015–2019 data to project deaths for 2020–2021, with adjustments for seasonality. We found that Thailand experienced 76,756 excess deaths during the COVID-19 pandemic, with a p-score of 5.24%, and 36,126 excess deaths with a p-score of 5.26% in the post-pandemic period. After the pandemic, excess deaths in some provinces were elevated but did not reach statistical significance. Pneumonia was the major contributor to the deaths. In conclusion, Thailand experienced excess mortality during both the pandemic and post-pandemic periods. The study has identified regional areas with excess deaths, and further investigation into these findings could support public health improvements and strengthen preparedness for future health crises. © The Author(s) 2025.

Exploring mimosamycin as a Janus kinase 2 inhibitor: A combined computational and experimental investigation

Computational Biology and ChemistryVolume 115April 2025
Article number 108346

Sanachai K.; Hengphasatporn K.; Chamni S.; Suwanborirux K.; **Mahalapbutr P.**; Shigeta Y.; Seetaha S.; Choowongkomon K.; Rungrotmongkol T.

Abstract

Janus kinases (JAKs) are a family of intracellular tyrosine kinases that play a crucial role in signal transduction pathways. JAK2 has been implicated in the pathogenesis of leukemia, making it a promising target for research aimed at reducing the risk of this disease. This study examined the potential of mimosamycin as a JAK2 inhibitor using both in vitro and in silico approaches. We performed a kinase assay to measure the IC50 of mimosamycin for JAK2 inhibition, which was found to be 22.52 ± 0.87 nM. Additionally, we utilized molecular docking, molecular dynamics simulations, and free energy calculations to investigate the inhibitory mechanism at the atomic level. Our findings revealed that mimosamycin interacts with JAK2 at several key regions: the hinge-conserved region (M929, Y931, L932, and G935), the G loop (L855 and V863), and the catalytic loop (L983). To enhance the binding affinity of mimosamycin toward JAK2, we designed derivatives with propanenitrile and cyclopentane substitutions on the naphthoquinone core structure. Notably, these newly designed analogs exhibited promising binding patterns against JAK2. These insights could aid in the rational development of novel JAK2 inhibitors, with potential applications in the treatment of leukemia and related diseases. © 2025 Elsevier Ltd

Fisetin-induced cell death, apoptosis, and antimigratory effects in cholangiocarcinoma cells

Journal of Applied Pharmaceutical Science Open Access Volume 15, Issue 2, Pages 96 - 105

Buranrat B.; **Senggunprai L.; Prawan A.; Kukongviriyapan V.**

Abstract

Fisetin is a plant flavonol that can be discovered in vegetables and fruits and it has been related to certain anticancer properties. It may prevent metastasis, reduce tumor cell proliferation, and stimulate apoptosis. Fisetin may inhibit cholangiocarcinoma (CCA) cell migration and proliferation; however, its exact actions are still less information. The aim of the current study was to examine the actions of fisetin on two types of CCA cells, KKU-100, and KKU-M452, in terms of their ability to proliferate, undergo apoptosis, and migrate. The fisetin effect on cell growth was determined using sulforhodamine B, colony-forming ability, and distribution of cell cycle method. The apoptotic induction was explored by acridine orange/ethidium bromide (AO/EB) staining assay. Migratory suppression was determined by Transwell migration and Wound healing assay. The mechanism of cell death and apoptosis was measured by reactive oxygen species (ROS) generation. Fisetin was significant in suppressing CCA cell viability and colony formation during the course of this experiment. Moreover, fisetin significantly potentiated the cisplatin-induced CCA cells death by determination with a combination index (CI). Additionally, it reduced the CCA cells growth through stimulating apoptosis, as seen by a reduction in the viable cell numbers and an increase in apoptotic cells. Fisetin also reduced the migration of cancer cells and demonstrated more pronounced effects on KKU-M452 cells, which are characterized by rapid migration, compared to KKU-100 cells which are characterized by slow migration. Moreover, fisetin prompted cell death and apoptosis in CCA cells by stimulating the generation of ROS in KKU-100 cells at a dosage of 50 μM. According to these results, fisetin efficiently restricts the growth of both CCA cell types by preventing cell proliferation, inducing apoptosis, and stopping migration which are accomplished by producing ROS. Therefore, fisetin could be considered as a promising therapeutic approach for targeting CCA cells. © (2025), (Open Science Publishers LLP Inc.). All rights reserved.

Gender-Affirming Voice Therapy Duration and Satisfaction: Experiences from a Single Institution

Journal of Voice2025

Laohakittikul C.; Gochman G.E.; Schneider S.L.; Young V.N.

Abstract

Objective: Current literature involving gender-affirming voice therapy (GAVT) for transgender and nonbinary (TGNB) individuals is limited. This study describes treatment duration and satisfaction at a single institution. Study design: Retrospective cohort. Setting: Tertiary laryngology center. Methods: TGNB patients receiving gender-affirming treatment were identified. Data collected: age, sex assigned at birth, gender identity, race, ethnicity, number/frequency of GAVT, Voice Handicap Index-10 (VHI-10), Trans Women Voice Questionnaire (TWVQ) (as appropriate), Gender Congruence Scale (GCS), patient and speech language pathologist (SLP) assessment of treatment satisfaction, and surgical data. Descriptive statistics were reported. Results: 82 TGNB patients [trans female (n = 65), trans male (n = 5), nonbinary (n = 12)] sought gender-affirming voice care. Mean age was 33.6 ± 10.7 years. Majority were assigned male at birth (n = 71). Mean presentation VHI-10 was 15.7 ± 8. In the first year of treatment, patients had mean 5.7 ± 3.1 (range 1–16, median 5) GAVT sessions, biweekly (n = 36, 44%) or monthly (n = 12, 15%). 62% (n = 51) of patients were satisfied/very satisfied, 23% (n = 19) fairly satisfied, and 10% (n = 8) unsatisfied with GAVT outcomes. SLP impression of GAVT outcome was more variable: 15% (n = 12) completely met voice goals and 11% (n = 9) had excellent GAVT response. Most patients (39%, n = 32) were making good progress, with further treatment recommended. SLP referred 11% (n = 9) to the laryngologist for surgery consideration; 9% (n = 6) underwent Wendler glottoplasty. Conclusions: Voice therapy is integral to gender-affirming voice care and often requires more sessions (mean 5.7) than the literature-reported average (4) for other voice diagnoses. Appropriate expectations should be set for patients, treating clinicians, and third-party payors about the increased anticipated duration of GAVT. © 2024 The Voice Foundation

Genomic analysis and virulence of human Streptococcus suis serotype 14

European Journal of Clinical Microbiology and Infectious DiseasesVolume 44, Issue 3, Pages 639 - 651March 2025

Boueroy P.; Brizuela J.; Roodsant T.J.; Wongsurawat T.; Jenjaroenpun P.; Chopjitt P.; Hatrongjit R.; Phetburom N.; **Chareonsudjai S.; Boonmars T.**; Schultsz C.; Kerdsin A.

Abstract

Purpose: Streptococcus suis serotype 14 is the second most prevalent serotype being highly prevalent in Southeast Asia. This study aimed to characterize genetic background, population structure, virulent genes, antimicrobial-resistant genes, and virulence of human S. suis serotype 14. Methods: Genomes of 11 S. suis serotype 14 were sequenced by short- and long-read sequencing platforms. The genomes were analyzed for genetic relationship, virulence-associated genes, and antimicrobial-resistant genes. Antimicrobial susceptibility was conducted and the virulence was tested based on cell assay. Results: All isolates belonged to clonal complex (CC) 1, with nine sequence type (ST) 105 isolates and each isolate of ST1 and ST237. They were susceptible to penicillin, whereas tetracycline and macrolide were resistance due to tetO and ermB. Genomic analysis revealed that the serotype 14-ST105 isolates were closely related to zoonotic serotype 14-ST105 isolates from Vietnam and the serotype 1-ST105 Thai strain. The serotype 14-ST1 isolate was closely related to pig-diseased serotype 1-ST1 isolates from UK and USA, whereas the serotype 14-ST237 isolate was related to serotype 1-ST237 strains recovered from healthy pig from Thailand. Of 150 virulence-associated genes, 13 were absent from the serotype 14 isolates, including atl1, atlAss, hhly3, nisK, nisR, pnuC, salK, salR, sp1, srtG, virB4, virD4, and zmp. The virulence of strain 32481, a representative S. suis serotype 14-ST105 isolate showed reduced adhesion and invasion of two epithelial cell lines (A549 and HeLa) when compared to the serotype 2-ST1 strain P1/7, whereas apoptosis was similar. Conclusion: This study highlighted the pathogenic potential of virulent serotype 14-ST105 strains and the need for increased monitoring of S. suis serotypes other than for serotype 2. © The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2024.

Geospatial distribution and risk factors of Strongyloides stercoralis in rural communities of Northeast Thailand

Tropical Medicine and International HealthVolume 30, Issue 5, Pages 393 - 403May 2025

Leang C.; Suwannatrai A.; Suttiprapa S.; Laha T.; Sripa B.

Abstract

Background: Strongyloides stercoralis is a neglected soil-transmitted helminth endemic in tropical and subtropical regions. This study aimed to determine the prevalence, risk factors, and spatial distribution of S. stercoralis infection in rural villages of Khon Kaen Province, Northeastern Thailand. Methods: A cross-sectional survey was conducted among 260 participants from 201 households across five randomly selected villages. Stool samples were analysed using agar plate culture and formalin-ethyl acetate concentration techniques, and soil samples were assessed for S. stercoralis DNA by PCR and physicochemical properties including pH, porosity, bulk density, moisture, organic matter, and nitrate. Results: The prevalence of S. stercoralis infection was 16.15%, with agar plate culture detecting 41 cases (15.77%) compared to 12 cases (4.62%) by formalin-ethyl acetate concentration techniques. The highest prevalence was observed in Norng Thungmon village (31.80%). Risk factors included male gender, older age, being a head of household, living in homes with earthen floors, walking barefoot, and proximity to water sources. Soil samples from 169 households revealed an S. stercoralis detection rate of 8.3% via PCR. Positive soil samples were predominantly from Norng Huachang and Don Du villages. Spatial analysis identified significant clustering of infections within high-risk areas. Soil physicochemical properties, including pH, moisture, and organic matter, were measured, though no significant correlations were found with infection rates. Conclusion: In conclusion, S. stercoralis remains a significant health concern but is neglected in rural Khon Kaen, with identifiable human and environmental risk factors. Enhanced health education, improved sanitation, and targeted interventions are essential for reducing transmission in endemic areas. © 2025 John Wiley & Sons Ltd.

Goblet cell metaplasia and mucin alterations in biliary epithelial cells during Opisthorchis viverrini infection in rodent models: Insights into host susceptibility and defense mechanisms

Veterinary World Open Access Volume 18, Issue 3, Pages 534 - 546March 2025

Wendo W.D.; Thongrin T.; **Tangkawattana P.; Sukon P.; Suttiprapa S.; Saichua P.**; Suyapoh W.; Tangkawattana S.

Abstract

Background and Aim: Chronic Opisthorchis viverrini (OV) infection induces significant biliary changes and is a major risk factor for cholangiocarcinoma. However, the role of goblet cell metaplasia (GCM) and mucin dynamics in host defense and parasite persistence remains poorly understood. This study aims to characterize biliary histological changes, particularly mucin types, and compare responses between susceptible (hamsters) and non-susceptible (mice) hosts during early to chronic OV infection. Materials and Methods: Thirty-five male golden Syrian hamsters and 35 male BALB/c mice were divided into infected and control groups. Infected animals received 50 OV metacercariae through gastric intubation and were sacrificed on days 1, 2, 7, 14, 28, and 56 post-infection. Histological, histochemical (Alcian Blue, periodic Acid-Schiff, and high iron diamine), and immunohistochemical (Bromodeoxyuridine [BrdU]) analyses were performed to assess mucin production, GCM, and bile duct proliferation. Results: Mice demonstrated an early, robust biliary response with pronounced hyperplasia and GCM characterized by acid mucin overproduction during the acute phase (days 1–28). Conversely, hamsters exhibited delayed biliary proliferation and GCM, with predominant sulfated mucins appearing during the chronic phase (days 28–56). BrdU immunoreactivity indicated earlier and stronger bile duct epithelial proliferation in mice, correlating with worm clearance by day 28. In hamsters, mucosal changes supported worm survival, as evidenced by continued parasite presence and egg production. Statistical analyses confirmed significant differences in mucin types and hyperplasia between species across infection stages. Conclusion: Distinct mucosal responses in hamsters and mice reflect their susceptibility to OV infection. Acid mucins in mice facilitate worm expulsion, while sulfated mucins in hamsters appear to promote parasite persistence. These findings highlight the dual roles of mucins in host defense and parasite survival, providing insight into mechanisms underlying susceptibility and resistance in OV infections. Copyright: Wendo, et al.

Heat stress in landfill environments: Evaluating worker exposure and occupational risks

Case Studies in Chemical and Environmental EngineeringVolume 11June 2025
Article number 101097

Abidin A.U.; Munawaroh A.L.; **Rosinta A.**; Sulistiyani A.T.

Abstract

Heat stress is a notable occupational health hazard, particularly because global climate change intensified environmental heat exposure. Workers in high-temperature environments, such as landfill sites, encounter significant health risks associated with heat stress, including dehydration, excessive sweating, fatigue, headaches, and potentially more severe conditions. This study examined landfill workers in Yogyakarta, where outdoor conditions increased their susceptibility to heat-related hazards. This study aimed to quantify heat stress in landfill operations via objective data analysis, which refers to the quantitative assessment of environmental heat conditions using the wet bulb globe temperature (WBGT) index, with the goal of informing practical interventions and improving worker health and safety protocols. This cross-sectional study, a type of observational research design, examined data collected at specific points in time. This study involved 39 landfill workers, with WBGT measurements collected at 25 sampling locations in the morning, daylight, and afternoon. This study evaluated the risk of heat stress at various times of the day using WBGT values. The results demonstrated notable fluctuations in WBGT, with peak levels occurring in daylight, consequently increasing the risk of heat stress. Age and body weight are significant factors because older individuals and those with increased body mass exhibit heightened susceptibility to heat retention. Statistical analysis revealed significant differences in WBGT measurements between morning and daylight and between daylight and afternoon ($p < 0.001$). These findings highlight the necessity for timely monitoring and management strategies to reduce heat stress risk, especially during daylight hours. © 2025 The Authors

High-fat/high-fructose diet and Opisthorchis viverrini infection promote metabolic dysfunction-associated steatotic liver disease via inflammation, fibrogenesis, and metabolic dysfunction

Acta TropicaVolume 261 January 2025 Article number 107491

Charoensuk L.; Thongpon P.; Sitthirach C.; Chaidee A.; Intuyod K.; Pairojkul C.; Khin E.H.H.; Jantawong C.; Thumanu K.; Pinlaor P.; Hongsrichan N.; Pinlaor S.

Abstract

Metabolic dysfunction-associated steatotic liver disease (MASLD) and opisthorchiasis, caused by Opisthorchis viverrini (O. viverrini) infection, frequently co-exist in Northeast Thailand. However, the underlying pathophysiology remains unknown. We aimed to investigate the effect of a high-fat/high-fructose (HFF) diet combined with O. viverrini infection on MASLD. Four groups each of ten male golden hamsters were established: normal controls (NC), O. viverrini-infected (OV), HFF-fed, and HFF-fed plus O. viverrini infection (HFF+OV). After four months of treatment, histopathological study indicated substantial hepatic damage in groups given the HFF diet. In particular, the HFF+OV group demonstrated marked lipid-droplet accumulation, hepatocyte ballooning, inflammatory-cell clustering, and widespread fibrosis. Biochemical tests indicated that the HFF+OV group had the highest concentrations of alanine aminotransferase and triglycerides, but cholesterol and low-density lipoprotein levels had increased in both HFF groups. Increased expression of Tgf-β1 and α-SMA, indicative of greater fibrosis, was demonstrated by picrosirius-red staining in the HFF+OV group. There was a significant increase in levels of inflammatory markers (HMGB-1, p65, and F4/80) and expression of genes related to the synthesis of fatty acids and glucose. FTIR microspectroscopy revealed distinct changes in fatty acids and proteins, associated with the more pronounced histopathology and impaired liver function in the HFF+OV group. The findings indicate that the interplay of a HFF diet and O. viverrini infection aggravates the progression of MASLD by augmenting liver damage, inflammation, fibrogenesis, and metabolic dysfunction. This study highlights the significance of incorporating both nutritional and infection factors into the management of liver disorders, especially in areas where opisthorchiasis is common. © 2024 Elsevier B.V.

Identification of molecular biomarkers in human serum for chronic kidney disease using attenuated total reflectance-Fourier transform infrared (ATR-FTIR) spectroscopy

Spectrochimica Acta - Part A: Molecular and Biomolecular SpectroscopyOpen AccessVolume 3345 June 2025 Article number 125941

Tangwanichgapong K.; Klanrit P.; Chatchawal P.; Wongwattanakul M.; **Pongskul C.**; Chaichit R.; Hormdee D.

Abstract

Chronic kidney disease (CKD) and its progression to end-stage renal disease (ESRD) represent significant global health challenges, contributing to increased morbidity and mortality. Despite the potential diagnostic value of ATR-FTIR spectroscopic analysis of serum in CKD, research in this area remains limited. This study addressed this gap by aiming to explore the spectral profiles of sera obtained from hemodialysis patients and healthy controls. We investigated serum spectral profiles from 21 hemodialysis patients and 21 age/sex-matched controls using ATR-FTIR spectroscopy in the mid-infrared region (4000–400 cm−1). Spectroscopic analysis revealed elevated spectral intensity in ESRD samples compared to controls. Principal Component Analysis (PCA) successfully distinguished ESRD from control samples across multiple spectral regions (1480–900 cm−1, 1800–900 cm−1, and combined 3000–2800/1800–900 cm−1). Partial Least Squares Discriminant Analysis (PLS-DA) demonstrated enhanced group separation, with the optimized PLS model achieving perfect classification metrics (100% accuracy, sensitivity, and specificity). The combined spectral region models exhibited superior diagnostic performance compared to other regions. The analysis identified key molecular biomarkers associated with ESRD, including alterations in lipids, protein structures (represented by amide I and II bands), carbohydrates, nucleic acids, and immunoglobulins, which correlate with known biochemical changes in CKD pathophysiology. These findings demonstrate that ATR-FTIR spectroscopy with multivariate analysis is a rapid, cost-effective screening tool for CKD. The identified spectral biomarkers provide insights into disease-related biochemical alterations, adding valuable data to the research in this field. © 2025 The Author(s)

Impact of Age in Single-Level Versus Multilevel Airway Compromise: A Multi-Institutional Review

Otolaryngology - Head and Neck Surgery (United States) Open Access
Volume 172, Issue 1, Pages 199 - 207January 2025

Laohakittikul C.; Khalsa I.K.; Rao S.J.; Stockton S.D.; Madden L.L.; Cates D.J.; Young V.N.

Abstract

Objective: Examine the association between age and treatment outcomes in conditions causing single- versus multilevel airway restriction. Study Design: Multi-institutional retrospective cohort study. Setting: Tertiary laryngology centers. Methods: Participants included younger (18-64 years) and geriatric (≥65 years) adults with posterior glottic stenosis (PGS), multilevel airway stenosis (MLAS), and bilateral vocal fold paralysis (BVFP). Subgroup demographics, comorbidities, type, and etiology of airway compromise were described. Associations between age and primary outcome variables (i.e., tracheostomy and decannulation rates, number of surgeries performed, time between surgeries, and change in quality-of-life patient-reported outcome measures [PROMs]) were evaluated. Statistical analyses included independent t tests, $\chi 2$, Fisher's exact, or Mann-Whitney tests. Results: In 158 patients [96 younger (30 PGS, 29 MLAS, 37 BVFP) and 62 geriatric (24 PGS, 9 MLAS, 29 BVFP)], age differences were not significant for gender (P =.990), tracheostomy placement (70% vs 66%, P =.629), or decannulation success (40% vs 24%, P =.091) in younger versus geriatric groups, respectively. In younger patients, MLAS was more common (30.2% vs 14.5%, P =.024), and BVFP patients were more likely to decannulate (50% vs 12%, P =.017). Geriatric patients were more likely to have a history of prior radiation (26% vs 10%, P =.016), stenosis due to malignancy (23% vs 9%, P =.022), and fewer overall surgeries (median 1 vs 3, P =.003). Median PROMs were comparable between age subgroups (P >.05). Conclusion: Younger adults underwent more surgeries, but overall comorbidities, tracheostomy decannulation rates, and PROMs were comparable between groups. Age does not negatively impact treatment outcomes and should not be a deterrent in treatment decision-making. © 2024 American Academy of Otolaryngology–Head and Neck Surgery Foundation.

Impact of HbE mutation on the clinical severity of HbH disease: A multicentre study from Thailand

British Journal of Haematology Volume 206, Issue 2, Pages 703 - 712
February 2025

Songdej D.; **Teawtrakul N.; Laoaroon N.; Komvilaisak P.**; Sripornsawan P.; Surapolchai P.; Hantaweepant C.; Tantiworawit A.; Hantrakool S.; Lauhasurayotin S.; Torcharus K.; Sutcharitchan P.; Uaprasert N.; Panrong K.; Silpsamrit P.; Meekaewkunchorn A.; Charoenkwan P.; Pongtanakul B.

Abstract

Haemoglobin (Hb) H disease and HbH disease with co-inherited HbE mutation are the most prevalent forms of α-thalassaemia in Southeast Asia. Data were limited when comparing clinical phenotypes between these two patient groups. We conducted a Thai multicentre study and enrolled 588 patients [median (IQR) age 13.0 (6.7–20.3) years], including those with deletional HbH disease with (n = 47) and without (n = 187) co-inherited HbE mutation and non-deletional HbH disease with (n = 101) and without (n = 253) co-inherited HbE mutation. Patients with HbH disease with co-inherited HbE mutation suffered more severe manifestations than those without. This observation was more pronounced in patients with non-deletional HbH disease. A greater proportion of patients with non-deletional HbH disease with co-inherited HbE mutation (43.6%) eventually required regular transfusions compared to those without (30.4%, p = 0.019). Among those with non-deletional HbH disease who did not require regular transfusions, Hb levels were lower in patients with co-inherited HbE mutation [8.1 (7.2–8.6) vs. 8.8 (8.2–9.5) g/dL, p < 0.001]. Among patients requiring regular transfusions who underwent splenectomy, 11/12 patients with non-deletional HbH disease stopped transfusion compared with 1/3 in non-deletional HbH disease with co-inherited HbE mutation group (p = 0.024). These findings provide insights for the clinical monitoring and management of HbH disease in the region. © 2024 British Society for Haematology and John Wiley & Sons Ltd.

Impact of Respiratory Muscle Training and Quadriceps Exercises on Voice, Respiratory Function in Community-Dwelling Older Adults

Journal of Voice2025

Prathanee B.; Buakanok N.; Pumnum T.; Ooppanasak N.; Panyaek N.

Abstract

Objective: This present study aimed to explore normative data and compare voice characteristics and respiratory function (Maximum counting duration: MCD peak expiratory flow rate: PEFR), Maximum inspiratory pressure: MIP), Maximum expiratory pressure: MEP), and quadriceps muscle strengthening before and after breathing with quadriceps exercises. Study Design: A one-group quasi-experiment design. Setting: Community-dwelling healthy elderly in Health Promoting Hospital. Method: Thirty community-dwelling healthy elderly aged 60-70 years old were enrolled the study for normative data, and twenty-three were in complete study for comparison the outcomes. Participants were assessed voice characteristics via computer speech lab (CSL), respiratory function by peak flow meter, micro respiratory pressure meter, quadricep exercises by leg strength dynamometer and five times sit to stand. Program of breathing with quadriceps exercises were implemented twice a day in sitting, standing position, and walking for 7 weeks. Result: Voice characteristics were presented normative data, and comparison between preseven-week and postseven-week program of program intervention revealed significant increasing percentage of Maximum phonation time (MPT) or Tsam (time of sample) of /a/, /u/, /i/ ranged 39.30%-55.46%; MCD 40.99%, Maximum inspiration pressure 20.59%, MEP 16.22% and PEFR 84.21%, after program function. Conclusion: Program of breathing with quadriceps exercises could significantly increase MPT, MCD, MIP, MEP, and PEFR in community-dwelling healthy elderly within 7. These were guideline for prevention voice disorders and aspiration in older adult. © 2025 The Voice Foundation

Implications of an off-hours setting in patients undergoing transcatheter edge-to-edge repair for mitral regurgitation

American Heart JournalVolume 282, Pages 70 - 80April 2025

Shechter A.; Gupta A.; **Kaewkes D.**; Taheri H.; Nagasaka T.; Patel V.; Suruga K.; Hong G.J.; Koseki K.; Koren O.; Makar M.; Skaf S.; Patel D.; Chakravarty T.; Siegel R.J.; Makkar R.R.

Abstract

Background: Little is known about transcatheter edge-to-edge repair (TEER) for mitral regurgitation (MR) that is performed outside of usual working hours. We aimed to explore the prevalence, correlates, and outcomes of mitral TEER initiated off-hours, ie, before 7:30 am, after 5:30 pm, or on weekends/holidays. Methods: A single-center registry of isolated, first-time interventions was retrospectively analyzed in its entirety and after propensity-score matching. Outcomes included all-cause mortality, heart failure (HF) hospitalizations, and the persistence of MR and functional incapacitation along the first postprocedural year. Results: A total of 1,177 procedures were studied. Of them, 117 (9.9%) took place off-hours. These were more often urgent interventions (30.8% vs. 14.3%, P < .001) performed in the midst of acute HF / hemodynamic compromise and on individuals with greater comorbidity, more advanced HF, and higher interventional risk. Overall procedural features were unaffected by interventional timing, and a high (>97%) technical success rate was achieved unanimously. MR severity and functional class similarly improved from baseline in the 2 study groups. Deaths and the composite of deaths or HF hospitalizations occurred earlier and more frequently following off-hours procedures (18.8% vs. 11.5%, P = .022 and 33.3% vs. 24.6%, P = .040, respectively). None of the explored endpoints' risks were independently associated with procedural timing. Within a 234-patient, 1-to-1 matched sub-cohort, no inter-group differences were observed in pre-, intra-, and postprocedural findings and outcomes. Conclusions: A noninfrequent procedure, off-hours mitral TEER is performed in high-risk cases but, in the hands of experienced interventionalists, should prove safe, feasible, and efficacious. © 2024 Elsevier Inc.

Influence of knowledge, attitude and self-efficacy on Opisthorchis viverrini and cholangiocarcinoma prevention: A One Health approach in high-risk areas of Thailand

Tropical Medicine and International HealthVolume 30, Issue 2, Pages 99 - 107February 2025

Busabong W.; Songserm N.; Woradet S.; **Sripa B.**

Abstract

Objective: Opisthorchis viverrini and cholangiocarcinoma have been recognised by the World Health Organisation as critical public health concerns, particularly in northeastern Thailand, where Opisthorchis viverrini is a significant cause of cholangiocarcinoma. This study examines the factors influencing Opisthorchis viverrini and cholangiocarcinoma prevention within the One Health framework in Kanthararom District, Sisaket Province, Thailand. Methods: A cross-sectional study was conducted among 327 residents aged 20 and above, utilising a structured questionnaire to assess knowledge, attitudes, perceived self-efficacy and prevention behaviours. Data were analysed using descriptive statistics, Pearson's product–moment correlation coefficient and multiple regression analysis to identify relationships and predictors within the dataset. Results: The results showed that 53.52% of participants had moderate knowledge and attitudes towards prevention, while perceived self-efficacy was generally high. Positive correlations were found between income, knowledge, attitudes, self-efficacy and prevention behaviours. Key predictors of Opisthorchis viverrini and cholangiocarcinoma prevention behaviours included attitudes towards human health (β = 0.212), perceived self-efficacy in human health (β = 0.211), attitudes towards animal health (β = 0.205) and knowledge about human health (β = 0.138), accounting for 24.40% of the variance in prevention behaviours. These predictors were statistically significant at 0.05 (F = 25.95; p <0.001). Conclusion: The findings suggest that enhancing knowledge, attitudes and self-efficacy is crucial to improving Opisthorchis viverrini and cholangiocarcinoma prevention. This study underscores the need for integrated public health strategies incorporating human, animal and environmental health to reduce the prevalence of Opisthorchis viverrini and cholangiocarcinoma in high-risk regions. © 2024 John Wiley & Sons Ltd.

Inhibitory effects of Trichoderma asperellum culture filtrates on pathogenic bacteria, Burkholderia pseudomallei

PeerJ Open Access Volume 13, Issue 22025 Article number e19051

Roopkhan N.; Chaianunporn T.; **Chareonsudjai S.**; Chaianunporn K.

Abstract

Background. Burkholderia pseudomallei is a soil- and water-dwelling bacterium that causes the life-threatening infection melioidosis. Patients typically acquire this infection through environmental exposure, so reducing B. pseudomallei levels in the environment could mitigate the risk of infection. Trichoderma asperellum is a biological control agent that synthesizes a diverse range of antimicrobial substances targeting other microorganisms. This study therefore examined the antibacterial and anti-biofilm activities of T. asperellum culture filtrate against B. pseudomallei. Methods. The antibacterial activities of T. asperellum culture filtrates, collected at various time intervals, were assessed against B. pseudomallei using the agar well diffusion method. Subsequently, the minimum inhibitory concentrations (MICs), minimum bactericidal concentrations (MBCs), and anti-biofilm activities of the culture filtrate exhibiting the highest inhibitory effect were determined. Bactericidal efficacy was further evaluated via a time-kill assay. The mechanisms underlying inhibition were then investigated using scanning electron microscopy and crystal violet uptake assays. Results. Filtrate collected from 7-day old cultures of T. asperellum (TD7) exhibited the strongest inhibitory effect on B. pseudomallei, with an inhibition zone of 30.33 ± 0.19 mm. The MIC of TD7 against B. pseudomallei was 7.81 ± 0.00 mg/mL and the MBC ranged from 7.81 ± 0.00 to 11.72 ± 1.75 mg/mL. Time-kill studies with TD7 confirmed its bactericidal activity, with complete elimination of B. pseudomallei occurring within 30 min treatment at 62.48 mg/mL (8xMIC) and 24 h treatment at 7.81 mg/mL (1xMIC). At a concentration of 7.81 mg/mL, TD7 also significantly reduced B. pseudomallei biofilm formation. Scanning electron microscopy revealed surface roughening and cell shrinkage of TD7-treated B. pseudomallei. TD7-treated bacteria were also found to absorb more crystal violet dye than untreated cells, indicating that TD7 might inhibit and kill B. pseudomallei by disrupting cell membrane permeability. Conclusions. Our findings demonstrate that T. asperellum culture filtrates possess bactericidal activity and effectively disrupt biofilm formation by B. pseudomallei. This suggests that T. asperellum could potentially be used to reduce the presence of B. pseudomallei in the environment and, consequently, lower the incidence of melioidosis. Copyright 2025 Roopkhan et al.

Integrated opisthorchiasis control through the EcoHealth/one health approach: 15 years of success and experiences with the Lawa model

One HealthOpen AccessVolume 20June 2025 Article number 101006

Sripa B.; Tangkawattana S.; Sangnikul M.

Abstract

Opisthorchis viverrini infection remains a major health problem in Northeast Thailand and the Mekong region impacting over 12 million and causing bile duct cancer. Using an EcoHealth/One Health approach at Lawa Lake in Thailand, our integrated control program achieved a substantial reduction in liver fluke prevalence from 60 % to <5 % over 15 years. Key interventions included chemotherapy, collaboratively designed health education, ecosystem modification, and community participation. Infections in intermediate hosts, Bithynia snails and Cyprinoid fish, are now undetectable. Improved community knowledge resulted in healthier practices. The “Lawa Model”, a recognized model for liver fluke control, is now a training hub being scaled up in Thailand and the Mekong region. This program demonstrates how One Health strategies can address complex health and ecological challenges and aligns with WHO recommendations. The success of the Lawa Model demonstrates the efficacy of integrated One Health interventions against endemic parasitic diseases. © 2025 The Author(s)

Internal limiting membrane peel size and macular hole surgery outcome: a systematic review and individual participant data study of randomized controlled trials

Eye (Basingstoke) Open Access Volume 39, Issue 7, Pages 1406 - 1413
May 2025 Article number 1619450

Teh B.L.; Li Y.; Nanji K.; Phillips M.; Chaudhary V.; Steel D.H.; Anantharaman G.; Modi A.; Sadda S.; Yao Y.; Zhao M.; Qu J.; Khodabande A.; Khalili Pour E.; Riazi-Esfahani H.; Bae K.; Kang S.W.; **Sinawat S.**

Abstract

Background: There is no consensus regarding the optimal internal limiting membrane (ILM) peel size during vitrectomy for idiopathic full thickness macular holes (iFTMH). Methods: A systematic review was performed to identify randomized controlled trials (RCTs) comparing vitrectomy with ILM peeling of differing sizes in adults with iFTMH. Individual participant data was obtained including relevant baseline variables. The effect of different ILM peel sizes, divided into “small” (1-disc diameter [DD] in radius or less) and “large” (>1-DD in radius) were analysed on primary hole closure and postoperative visual acuity (VA) at 6 months. A subgroup analysis analysing for the effect of macular hole size on the same outcomes was also performed. Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) was used to assess the certainty of evidence. Results: Five RCTs with 370 eyes were included. Primary closure was achieved in 74.7% in small peel group compared to 84.8% in large peel group (p = 0.016). Multilevel logistic regression showed that a peel radius of >1-DD probably improved hole closure slightly with odds ratio (OR) of 1.20 (95% CI: 1.11–1.31, p < 0.001) and a number needed to treat (NNT) to benefit of 31 (95% CI: 21–53). ILM peel size likely did not affect VA. The mean difference in postoperative VA was a -0.05 logMAR gain (2-3 ETDRS letters) (95% CI: −0.13 to 0.02, p = 0.155) in vision with a large ILM peel radius. The GRADE certainty of evidence was moderate for both outcomes. A significantly higher closure rate was found in the large peel group for iFTMH >400 microns with an OR of 1.24 (95% CI: 1.11–1.38, p < 0.001) and NNT to benefit of 21 (95% CI: 17–50), but not in holes <400 microns (OR 1.05 (95% CI: 0.93–1.18, p = 0.396)). Conclusions: Performing ILM peel of more than 1-DD in radius likely improves closure rates for iFTMH although the effect size is relatively small. The effect is greater in holes >400 microns. ILM peel size probably has no significant effect on postoperative VA. © The Author(s) 2025.

Intraocular Lens Power and Corneal Topographic Change After Pterygium Surgery

American Journal of Ophthalmology Volume 269, Pages 409 - 418 January 2025

Anutarapongpan O.; Sintopachakul M.; Petpansri C.; Thanathanee O.; Luanratanakorn P.; Suwan-apichon O.; Yospaiboon Y.

Abstract

Purpose: To investigate the impact of pterygium excision on intraocular lens (IOL) power calculation and corneal astigmatism. Designs: Prospective cohort study. Methods: We enrolled 30 eyes with primary pterygium that underwent pterygium excision with a conjunctival autograft. IOL power calculation and keratometry using the IOL Master 700, along with topographic parameters using the Pentacam Scheimpflug topography system, were performed preoperatively and at 1, 3, 6, and 12 months postoperatively. We analyzed correlations between pterygium length/area and IOL power, as well as corneal topographic changes. Results: The mean pterygium length was 2.08 ± 0.58 mm, and the mean area was 6.05 ± 2.41 mm2. One year after pterygium surgery, the calculated IOL power values using all formulas were lower than the preoperative values. Pterygia with a horizontal length of 1.73 mm and an area of 4.45 mm2 and those with a horizontal length of 2.25 mm and an area of 6.95 mm2 created 0.5 diopters (D) and 1.0 D errors in calculated IOL power, respectively ($P < .001$). The calculated IOL power values changed significantly from preoperative to 6 months postoperatively but did not change significantly from 6 to 12 months postoperatively. Pterygia with a horizontal length >1.83 mm ($P < .001$) and an area >5.1 mm2 ($P < .001$) created a 2.0 D error in anterior corneal astigmatism. Conclusions: Pterygium causes errors in IOL power calculation, with greater pterygium length/area exerting a larger effect. Cataract surgery with IOL implantation is recommended ≥6 months after pterygium surgery. In combined cases, calculated IOL power should be decreased by 0.5 to 1.5 D based on the pterygium length/area. © 2024 Elsevier Inc.

Investigation of malaria vectors Anopheles in non-endemic areas of Thailand: in proximity to workplaces housing foreign migrant workers

Malaria Journal Open AccessVolume 24, Issue 1December 2025 Article number 18

Firmansyah N.E.; Thongseesuksai T.; Boonmars T.; Laummaunwai P.

Abstract

Background: Foreign migrant workers from malaria-endemic regions play a critical factor in the transmission of malaria to non-endemic areas, mainly due to their mobility while seeking employment opportunities. This risk is particularly heightened in areas where malaria vectors are present. Methods: This study aimed to investigate the malaria vectors in two sub-districts in Khon Kaen Province, known for their factory areas and the significant presence of Myanmar migrant worker communities. The collection was carried out from June 2020 to May 2021. The black light traps (BLT) operated continuously from 6:00 pm to 6:00 am (12 h) and Kelambu trap (KT) were set up from 6:00 pm to 9:00 pm, with both traps set up once a month. A total of 679 female Anopheles mosquitoes were collected near the workplaces and dormitories of these workers. Subsequently, the collected female mosquitoes underwent morphological identification using Standard Thailand keys and polymerase chain reaction analysis with rDNA ITS2 primers. Results: Morphological identification revealed that 201 (29.6%) belonged to the Barbirostris complex. The remaining Anopheles mosquitoes are in the subgroup Cellia, comprised 437 (64.4%) Anopheles vagus, 39 (5.7%) Anopheles subpictus, and 2 (0.3%) Anopheles annularis. To distinguish the Barbirostris complex, multiplex PCR based on ITS-2 sequences was conducted. Out of the 201 specimens examined, 153 (76.1%) as Anopheles campestris, 36 (17.9%) as Anopheles wejchoochotei, and 12 (6%) as Anopheles dissidens. Additionally, the subgroup Anopheles Cellia was confirmed using specific primers based on ITS-2 sequences. Conclusions: From the obtained results, An. campestris, An. wejchoochotei, An. vagus and An. annularis are reported as the malaria vectors in Thailand. The findings emphasized the important of addressing the presence of Anopheles malaria vectors, especially in the substantial migrant worker population originating from endemic areas. This situation raises concerns regarding the potential transmission of malaria infections to regions not traditionally affected by the disease. Epidemiological studies on malaria vectors should not solely concentrate on endemic regions but also extend to non-endemic areas because of the mobility of migrant workers throughout the country. This broader approach is crucial for implementing an effective malaria surveillance strategy. © The Author(s) 2025.

KRAS Mutations in Cholangiocarcinoma: Prevalence, Prognostic Value, and KRAS G12/G13 Detection in Cell-Free DNA

Cancer Genomics and ProteomicsOpen AccessVolume 22, Issue 1, Pages 112 - 126January 2025

Thongyoo P.; Chindaprasirt J.; Aphivatanasiri C.; Intarawichian P.; Kunprom W.; Kongpetch S.; Techasen A.; Loilome W.; Namwat N.; Titapun A.; Jusakul A.

Abstract

Background/Aim: Cholangiocarcinoma (CCA) is an aggressive hepatobiliary malignancy characterized by genomic heterogeneity. KRAS mutations play a significant role in influencing patient prognosis and guiding therapeutic decision-making. This study aimed to determine the prevalence and prognostic significance of KRAS mutations in CCA, asses the detection of KRAS G12/G13 mutations in plasma cell-free DNA (cfDNA), and evaluate the prognostic value of KRAS G12/G13 mutant allele frequency (MAF) in cfDNA in relation to clinicopathological data and patient survival. Materials and Methods: A retrospective analysis of 937 CCA patients was performed using data from cBioPortal to examine KRAS mutation profiles and their association with survival. Plasma from 101 CCA patients was analyzed for KRAS G12/G13 mutations in the cfDNA using droplet digital PCR, and the results were compared with tissue-based sequencing from 78 matched samples. Results: KRAS driver mutations were found in 15.6% of patients, with common variants being G12D (37.0%), G12V (24.0%) and Q61H (8.2%). Patients harboring KRAS mutations exhibited decreased overall and recurrence-free survival. KRAS G12/G13 mutations were detected in 14.9% of cfDNA samples, showing moderate concordance with tissue sequencing, and achieving 80% sensitivity and 93% specificity. Elevated KRAS G12/G13 MAF in cfDNA, combined with high CA19-9 levels, correlated with poorer survival outcomes. Conclusion: The presence of KRAS mutations was associated with poor survival in CCA, underscoring the importance of KRAS mutations as prognostic markers. The detection of KRAS mutations in cfDNA demonstrated potential as a promising non-invasive alternative for mutation detection and, when combined with CA19-9 levels, may improve prognostic efficacy in CCA. © 2025 The Author(s).

Laser-induced graphene electrochemical immunosensors for rapid and sensitive serological detection: A case study on dengue detection platform

Sensors and Actuators Reports Volume 9 June 2025 Article number 100276

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Abstract

Here, we present a diagnostic on a chip platform based on laser-induced graphene (LIG) electrochemical immunosensors for serological detection. The electrochemical immunosensors are fabricated through CO2 laser induction on polyimide (PI) sheets. Optimal electrochemical activity of LIG electrodes is obtained under optimized conditions of laser fluence. To verify the application, the serological detection platform was demonstrated. After functionalization with dengue virus (DENV) antigen, the LIG electrochemical immunosensors are able to sense the presence of mouse anti-flavivirus monoclonal (4G2) antibody in a wide linear working range of 25–20,000 ng/ml with the limit of detection (LOD) of 17.41 ng/ml. A specific recognition with 4G2 antibodies against with media protein and isotype is confirmed. Furthermore, the reliability of LIG electrochemical immunosensors compared to conventional enzyme-linked immunosorbent assay (ELISA) is verified through the NS1 antibodies identification in human blood serum clinical samples at room temperature. Our results highlight that the LIG-based electrode is a promising platform for electrochemical immunosensors, aimed at developing reliable and practical diagnostic tools for serological detection. These tools enable early diagnosis of infectious diseases, as well as non-invasive and rapid screening. © 2024 The Author(s)

Long-term risk of mortality and loss to follow-up in children and adolescents on antiretroviral therapy in Asia

HIV MedicineVolume 26, Issue 1, Pages 140 - 152January 2025

Nimkar S.; Kinikar A.; Mave V.; Khol V.; Du Q.T.; Nguyen L.; Ounchanum P.; Nguyen D.Q.; Puthanakit T.; **Kosalaraks P.**; Chokephaibulkit K.; Sudjaritruk T.; Muktiarti D.; Kumarasamy N.; Yusoff N.K.N.; Mohamed T.; Wati D.; Alam A.; Fong S.; Nallusamy R.; Suwanlerk T.; Sohn A.; Kariminia A.; Ly P.S.; Penh P.; Tucker J.; Chandrasekaran E.; Marbaniang I.; Vedaswari D.; Ramajaya I.B.; Ngoerah I.G.N.G.; Kurniati N.; Mangunkusumo C.; Fong S.M.; Lim M.; Daut F.; Yusoff N.K.N.; Mohamad P.; Drawis M.R.; Chan K.C.; Sirisanthana V.; Aurpibul L.; Hansudewechakul R.; Denjanta S.; Kongphonoi A.; Lumbiganon P.; Kosalaraksa P.; Tharnprisan P.; Udomphanit T.; Jourdain G.; Anugulruengkit S.; Jantarabenjakul W.; Nadsasarn R.; Lapphra K.; Phongsamart W.; Sricharoenchai S.; Truong K.H.; Du Q.T.; Nguyen C.H.; Nguyen L.V.; Tran D.M.; Tran H.T.T.; Giang T.T.T.; Le O.N.; Ross J.L.; Law M.G.

Abstract

Objective: We described mortality and loss to follow-up (LTFU) in children and adolescents who were under care for more than 5 years following initiation of antiretroviral therapy (ART). Methods: Patients were followed from 5 years after ART until the earlier of their 25th birthday, last visit, death, or LTFU. We used Cox regression to assess predictors of mortality and competing risk regression to assess factors associated with LTFU. Results: In total, 4488 children and adolescents initiating ART between 1997 and 2016 were included in the analysis, with a median follow-up time of 5.2 years. Of these, 107 (2.2%) died and 271 (6.0%) were LTFU. Mortality rate was 4.35 and LTFU rate 11.01 per 1000 person-years. Increased mortality was associated with AIDS diagnosis (adjusted hazard ratio [aHR] 1.71; 95% confidence interval [CI] 1.24–2.37), current CD4 count <350 cells/mm3 compared with ≥500 (highest aHR 13.85; 95% CI 6.91–27.76 for CD4 <200), viral load ≥10 000 copies/mL compared with <400 (aHR 3.28; 95% CI 1.90–5.63), and exposure to more than one ART regimen (aHR 1.51; 95% CI 1.14–2.00). Factors associated with LTFU were male sex (adjusted subdistribution hazard ratio [asHR] 1.29; 95% CI 1.04–1.59), current viral load >1000 copies/mL compared with <400 (highest asHR 2.36; 95% CI 1.19–4.70 for viral load 1000–9999), and ART start after year 2005 compared with ≤2005 (highest asHR 5.96; 95% CI 1.98–17.91 for 2010–2016). Conclusion: For children and adolescents surviving 5 years on ART, both current CD4 and viral load remained strong indicators that help to keep track of their treatment outcomes. More effort should be made to monitor patients who switch treatments. © 2024 British HIV Association.

Magnetic Resonance Elastography of Upper Trapezius Muscle

NMR in BiomedicineOpen AccessVolume 38, Issue 4April 2025
Article number e70007

Hojo E.; Sucharit W.; **Jaruchainiwat S.; Thammaroj P.; Promsorn J.**; **Chowchuen P.**; Glaser K.; Chatchawan U.; Roberts N.

Abstract

The goal of the present study was to investigate the effect of positioning a soft flexible tube-based actuator parallel or orthogonal to the principle muscle fibre direction, on measurements of the stiffness of upper trapezius (UT) muscle obtained using magnetic resonance elastography (MRE). The effects of using three different vibration frequencies (60 Hz, 80 Hz and 100 Hz) and studying left and right sides of the body were also investigated. The relevant MRE datasets were acquired on a 1.5 T MRI system using a 2D gradient-echo (GRE) MRE sequence, and corresponding wave images produced using multimodel direct inversion (MMDI) were analysed by two observers using the manual caliper technique. Except for two of the 108 individual datasets, when the agreement was moderate, there was substantial to perfect agreement between wave quality scores obtained by the two observers, with an identical mean value. Similarly, and again with only two exceptions, there was good to excellent agreement between the measurements of UT stiffness obtained by the two observers. UT stiffness values obtained when the acoustic waves were propagating along the principle muscle fibre direction were significantly higher than when the waves were propagating orthogonal to the principle muscle fibre direction at all vibration frequencies ($p < 0.005$), and only for the former was a significant dispersion effect observed whereby stiffness increased as frequency increased ($p < 0.05$). No significant asymmetry was observed in measurements of UT stiffness obtained for the left and right sides of the body ($p = 0.29$). In conclusion, the new soft and flexible tube-based actuator is comfortable and produced very good wave propagation in UT when positioned in either orientation. However, it is recommended for wave propagation to be induced in the principle fibre direction and there was found to be no advantage in using a vibration frequency above 60 Hz. © 2025 The Author(s). NMR in Biomedicine published by John Wiley & Sons Ltd.

Mapping malaria in Thailand: A Bayesian spatio-temporal analysis of national surveillance data

Tropical Medicine and International HealthVolume 30, Issue 5, Pages 404 - 416May 2025

Pratumchart K.; Thinkhamrop K.; Suwannatrai K.; Sudathip P.; Kitchakarn S.; Tam L.T.; Soukavong M.; Varnakovida P.; Boonmars T.; Wisetmora A.; Moukomla S.; Clements A.C.A.; Wangdi K.; Suwannatrai A.T.

Abstract

Objectives: Malaria, caused by protozoan parasites of the genus Plasmodium, remains prevalent in tropical and subtropical regions. This study employed Bayesian spatio-temporal analysis to assess malaria incidence patterns and identify environmental and climatic correlates across Thailand at the district level. Methods: We analysed national malaria surveillance data using Bayesian hierarchical models to examine spatio-temporal patterns in malaria incidence. The model incorporated random effects to account for unobserved heterogeneity across locations and over time, enabling robust inferences on the relationships between environmental and climatic factors and malaria incidence. Results: This analysis revealed seasonal malaria incidence patterns related to environmental and climatic factors, particularly Plasmodium vivax and Plasmodium falciparum. A 1°C increase in maximum temperature at a 6-month lag was associated with an 8% increase in P. vivax incidence (relative risk [RR] = 1.08; 95% credible interval [CrI]: 1.06–1.10). Additionally, a 0.1-unit increase in normalised difference vegetation index corresponded to an 11.96-fold increase in P. vivax cases (95% CrI: 9.36–15.38), while each 100 mm increase in precipitation led to an 8% rise (RR: 1.08; 95% CrI: 1.06–1.09). For P. falciparum, a 0.1-unit increase in normalised difference vegetation index correlated with an 11.59-fold increase in incidence (95% CrI: 8.29–16.16). The risk of P. falciparum increased by 15% per 100 mm increase in precipitation (RR = 1.15; 95% CrI: 1.13–1.17) and by 4% for each 1°C rise in maximum temperature (RR = 1.04; 95% CrI: 1.02–1.06). Elevated incidence was predominantly observed along the Thai-Cambodian and Thai-Myanmar borders, with central Thailand classified as low risk. Conclusion: These findings highlight the significance of integrating environmental and climatic factors into malaria control strategies. The insights gained can guide the Thai government's resource allocation for effective surveillance, treatment, and preventive measures, ultimately supporting malaria control and elimination efforts in the region. © 2025 John Wiley & Sons Ltd.

Microbiota shifts in fracture-related infections and pathogenic transitions identified by 16S rDNA sequencing

Scientific Reports Open Access Volume 15, Issue 1 December 2025
Article number 7732

Sukpanichyingyong S.; Sae-Jung S.; Stubbs D.A.; Luengpailin S.

Abstract

Fracture-related infection (FRI) is a major challenge in orthopaedic trauma. Understanding of the microbial shift with respect to the initial contamination to infection phase is crucial. This study was to examine the wound microbiota associated with FRI in a prospective cohort study of 155 patients with Gustilo-Anderson Type II, IIIA or IIIB open fractures. Tissue samples were systematically collected from all patients during initial surgical debridement. Out of these, patients who developed infection (FRI group, n = 28) had a second tissue sampling during re-debridement. Conversely, patients who achieved normal healing and subsequently received definitive open reduction and internal fixation served as control (NH group, n = 24). Marked differences between all groups were revealed in the 16S rDNA analysis of microbial communities. The species richness was higher in the Pre-FRI group, but bacterial diversity declined significantly in the FRI group after infection onset. In the Pre-FRI and Pre-NH groups, Firmicutes were the dominating phylum, while in the FRI and NH groups, Proteobacteria and Actinobacteria appeared more prevalent, respectively. In Pre-FRI notably abundant Bacillus and Staphylococcus and in FRI, the most pathogens were Enterobacter and Pseudomonas. The NH group maintained balanced microbial diversity. These findings suggest that declining microbiota diversity and shifts towards dominant pathogens in open fracture patients may serve as early indicators of infection risk, with Bacillus potentially emerging as a predictive biomarker for FRI susceptibility. © The Author(s) 2025.

Modified wall-stretching exercises: A practical strategy to promote an immediate effect of shoulder flexibility

Journal of Associated Medical Sciences Volume 58, Issue 2, Pages 179 - 185May-August 2025

Tambing G.; Amatachaya S.; Wiyanad A.; Thaweewannakij T.; **Manimmanakorn N.**; Namwong W.

Abstract

Background: The decreased flexibility could attribute numerous adverse impacts to daily functions and risk of joint injury, especially in the joint with a large range of motion (ROM), such as that of the shoulder. Current management to increase shoulder flexibility mostly face the problems of regular adherence due to the need for expert guidance and the requirement of specific and numerous poses that are difficult to remember and time-consuming. Objective: To investigate the immediate effects of the modified wall-stretching exercise on shoulder flexibility using a quasi-experimental design. Moreover, the study explored the proportion of arms (dominant and non-dominant) with limited shoulder flexibility. Materials and methods: Fifty-six participants (38 females, 68%) with limited shoulder flexibility as determined using the back scratch test performed a modified wall-stretching exercise. The method required the participants to place their hands against the wall at the shoulder levels with elbow and wrist extensions while the hands were in three positions: upward, sideward, and downward. Participants moved the upper trunk downward and held at the maximal stretch position for 15 seconds in each hand position. After a sufficient rest period, participants were re-assessed for their shoulder flexibility using the back scratch test. The paired samples t-tests were used to analyze the study findings. Results: Most participants had limited shoulder flexibility in both arms (N=35, 63%), especially in the non-dominant arm (60%). Immediately after 45 seconds of a modified wall-stretching exercise, participants significantly improved their shoulder flexibility by approximately 3 cm ($p<0.001$). Conclusion: The limited shoulder flexibility, particularly on the non-dominant arm, suggests that a sedentary lifestyle, characterized by spending the most time in a flexed posture using social media, may have contributed to reduced muscle strength, particularly in the non-dominant arm when performing overhead activities. The present findings suggest using a modified wall-stretching exercise as an alternative practical, self-administering, and effective method to promote shoulder flexibility that can be applied easily in various settings. © 2025, Faculty of Associated Medical Sciences, Chiang Mai University. All rights reserved.

MOG antibody-associated disease epidemiology in Olmsted County, USA, and Martinique

Journal of NeurologyVolume 272, Issue 2February 2025 Article number 118

Cacciaguerra L.; Sechi E.; Komla-Soukha I.; Chen J.J.; Smith C.Y.; Jenkins S.M.; Guo K.; Redenbaugh V.; Fryer J.P.; Tillema J.-M.; **Vorasoot N.**; Tisavipat N.; Thakolwiboon S.; Dubey D.; Zekeridou A.; McKeon A.; Tobin W.O.; Kantarci O.H.; Keegan B.M.; Tajfirouz D.A.; Chodnicki K.D.; Mandrekar J.; Lucchinetti C.F.; Lopez-Chiriboga S.A.; Nathoo N.; Joseph N.K.; Devine M.F.; Sagen J.A.; Pittock S.J.; Cabre P.; Flanagan E.P.

Abstract

Objectives: To report myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD) epidemiology in two American regions using 2023 diagnostic criteria. Patients and methods: We compared age- and sex-adjusted incidence and prevalence of MOGAD per 2023 diagnostic criteria in Olmsted County (Minnesota [USA]) and Martinique (Caribbean [FR]) (01/01/2003–12/31/2018, prevalence day) using Poisson regression. Archived sera in 68–85% were available for MOG-IgG testing by live cell-based assay at Mayo Clinic. Results: Of 21 patients with MOG-IgG positivity identified, 16 fulfilled MOGAD criteria (38% female; median age of 27 years, interquartile-range [IQR 23–42]) and five with low-positive MOG-IgG did not (optic neuritis lacking supportive criteria, 2; alternative diagnosis of multiple sclerosis, 3). MOGAD prevalence was similar in Olmsted County (3.70/100,000, 95% confidence interval [CI] 0.74–6.66]) and Martinique (2.61/100,000; 95% CI 0.85–4.37, P = 0.46). MOGAD incidence was 3.00/million-person-years (95% CI 0.78–5.22) in Olmsted County and 1.18/million-person-years (95% CI 0.30–2.07) in Martinique (P = 0.08). Children represented 29% of MOGAD in Olmsted County and 11% in Martinique. During their disease course the attacks included: optic neuritis (13/16 [81%]); myelitis (6/16 [38%]); and acute disseminated encephalomyelitis (2/16 [13%]). The proportion of MOGAD among incident CNS demyelinating diseases was greater in children (13–14%) than adults (2–4%; P = 0.005). At last follow-up (median, 5 years, IQR 2–9), the median EDSS was 1.0 (IQR 0.5–2.75) with 1/16 (6%) blind in one eye and 9/16 (56%) had relapsing MOGAD. Conclusions: This study provides estimates of incidence and prevalence of MOGAD in the USA and Martinique and shows that, although children are predisposed, the disease is spread broadly across the age spectrum and population-based outcomes are favorable. © Springer-Verlag GmbH Germany, part of Springer Nature 2024.

Molecular convergence of neutralizing antibodies in human revealed by repeated rabies vaccination

npj VaccinesOpen AccessVolume 10, Issue 1December 2025 Article number 39

Fujisawa M.; Onodera T.; Kuroda D.; Kewcharoenwong C.; Sasaki M.; Itakura Y.; Yumoto K.; **Nithichanon A.**; Ito N.; Takeoka S.; Suzuki T.; Sawa H.; Lertmemongkolchai G.; Takahashi Y.

Abstract

Rabies vaccines require repeated immunization to robustly elicit neutralizing antibodies that prevent fatal diseases. Here, we analyzed rabies glycoprotein antibody repertoires at both polyclonal and monoclonal levels following repeated vaccination. Booster vaccination dramatically elevated the neutralizing activity of recalled antibodies, primarily targeting an immunodominant site III epitope with hydrophilic and rugged structures. Strikingly, the majority of site III-directed antibodies in the recall response used a convergent VH gene (IGHV3-30), and they exhibited more hydrophilic and shorter paratopes than non-site III antibodies, providing physicochemical advantages for binding to site III. Additionally, several amino acids on heavy chain CDR3 were identified as key sites for acquiring an ultrapotent neutralizing activity through site III binding. Our in-depth analysis of antibody repertoires revealed the molecular signatures of neutralizing antibodies generated by repeated rabies vaccination, possibly as a result of adaptive convergence. © The Author(s) 2025.

Nanocellulose-based Pickering emulsion of sesamolin manifested increased anticancer activity and necrosis in human colon cancer (HCT116) cells

International Journal of Biological MacromoleculesVolume 292
March 2025 Article number 139225

Rosalina R.; Weerapreeyakul N.; Sutthanut K.; Kamwilaisak K.; **Sakonsinsiri C.**

Abstract

Sesamolin possesses limited aqueous solubility, a drawback for biological activity study in cancer cell models. This study aimed to enhance sesamolin's ability to fight cancer, as it is a bioactive compound with low water solubility found in sesame. We developed different Pickering emulsion delivery systems and tested their anticancer effects on various cancer cell types. Sesamolin was incorporated into either sesame or olive oil and subsequently formulated as oil in water (o/w) Pickering emulsions stabilized by the carboxylated cellulose nanocrystal (cCNC). The anticancer activity was determined based on cell viability and the induction of cell death mechanisms. The results demonstrated a synergistic effect of the components in the emulsion, including sesamolin, sesame oil, and olive oil, and a decrease in HCT116 viability in a concentration-dependent manner and selectively on cancer cells compared to non-cancerous Vero cells. The primary mode of cell death was predominantly ROS-induced necrosis, with no change in caspase 3/7 activity, indicating the absence of apoptosis. This study first presents the necrotic cell death mechanism induced by sesamolin. The findings reveal that the cCNC emulsion delivery system is safe and appropriate for transporting lipophilic chemicals and can overcome solubility limitations. © 2024 Elsevier B.V.

Navigating Healthcare Simulation: A Practical Guide for Effective Teaching

Springer Briefs in EducationVolume Part F78, Pages 1 - 116

Tangpaisarn T.; Phrampus P.E.; O'donnell J.M.

Abstract

This book is crafted for both novice simulation educators embarking on their teaching careers and seasoned subject matter experts seeking to enhance the effectiveness of their simulation programs. The book draws on the effort of a novice simulation educator under the guidance of two simulation experts with over 40 years of collective experience. Readers will embark on a transformative journey with this book, which is designed to empower readers who utilize simulation as a teaching tool. This book serves as a roadmap, leading educators toward a more organized and practical approach to conducting simulations. Covering a wide spectrum of topics, the book begins with insights into associated learning theories for simulation, providing valuable strategies for increasing learner engagement. Delving deeper, it explores various simulation modalities and locations, guiding educators to choose the best options for their teaching objectives. Within the pages of this handbook, readers will find detailed discussions on scenario design, simulation phases and crucial aspect of simulation best practices including prebriefing, implementation, facilitation and debriefing among others. In addition, the book addresses learner assessment and course evaluation, ensuring a well-rounded understanding of the entire simulation process. The authors invite readers to explore the wealth of knowledge within these pages, with the hope that they will gain valuable insights to elevate their simulation knowledge and skills and contribute to the continuous improvement of their teaching practices to the benefits of their students. © The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2025.

Nelumbo nucifera Petals Ameliorate Depressive-like Symptom and Cognitive Deficit in Unpredictable Chronic Mild Stress Mouse Model

Nutrients Open Access Volume 17, Issue 1 January 2025 Article number 94

Maneenet J.; Chotritthirong Y.; Omar A.M.; **Choonong R.**; Daodee S.; Monthakantirat O.; Khamphukdee C.; Pitiporn S.; Awale S.; Matsumoto K.; Chulikhit Y.

Abstract

Background Chronic stress exposure has been widely recognized as a significant contributor to numerous central nervous system (CNS) disorders, leading to debilitating behavioral changes such as anxiety, depression, and cognitive impairments. The prolonged activation of the hypothalamic–pituitary–adrenal (HPA) axis during chronic stress disrupts the neuroendocrine balance and has detrimental effects on neuronal function and survival. Nelumbo nucifera (N. nucifera) Gaertn., commonly known as the lotus flower, is a traditional medicinal plant consumed for its purported benefits on mental and physical well-being. Despite its traditional use, limited scientific evidence supports these claims. Methods The present study explores the effects of N. nucifera, commonly known as the lotus flower, on cognitive performance and stress resilience in a mouse model subjected to unpredictable chronic mild stress (UCMS). Results Daily treatment significantly improved cognitive performance, alleviated depressive-like behaviors, and normalized hypothalamic–pituitary–adrenal (HPA) axis activity, as indicated by a 60.97% reduction in serum corticosterone. At the molecular level, N. nucifera petals also downregulated serum- and glucocorticoid-inducible kinase 1 (SGK1) mRNA expression while upregulating brain-derived neurotrophic factor (BDNF) mRNA expression and cyclic-adenosine monophosphate (cAMP) responsive element-binding protein (CREB) mRNA expression in the hippocampus and frontal cortex. These normalizations are critical, as chronic stress dysregulates HPA axis function, exacerbating behavioral changes. Furthermore, a phytochemical analysis resulted in the isolation of five major compounds, kaempferol (1), trifolin (2), kaempferol-3-neohesperidoside (3), icariside D2 (4), and β-sitosterol (5), each demonstrating significant monoamine oxidase (MAO) inhibitory activity. Conclusions These compelling findings suggest that N. nucifera petals not only alleviate stress-induced mood and cognitive deficits but also offer a promising avenue for modulating the HPA axis and promoting neuroprotection via essential neurotrophic factors and enzymatic pathways. We advocate for its potential as a complementary and alternative medicine for effective stress management. Future investigations should further explore its mechanisms of action and evaluate its clinical applicability in stress-related disorders. © 2024 by the authors.

Nuclear Intron Sequence Variation of the Bulinus globosus Complex (Mollusca: Planorbidae): Implications for Molecular Systematic Analyses

Biology Open Access Volume 14, Issue 1 January 2025 Article number 53

Tantrawatpan C.; Vaisusuk K.; Tanga C.M.; Pilap W.; Bunchom N.; Andrews R.H.; Thanchomnang T.; **Maleewong W.**; Saijuntha W.

Abstract

Urinary schistosomiasis is caused by the blood fluke Schistosoma haematobium, which is predominantly found in Africa. The freshwater snail Bulinus globosus is its main intermediate host. The species that make up the B. globosus group are genetically complex, and their taxonomic status remains controversial. Genetic variation, heterozygosity, and DNA recombination in B. globosus were examined using the mitochondrial cytochrome c oxidase subunit 1 (COI) and the intron 3 region of the arginine kinase gene (AkInt3). A total of 81 B. globosus snails were collected from three different localities in Kwale County, Kenya. Genomic diversity, heterozygosity, DNA recombination, and haplotype network were calculated using AkInt3 sequences. Low polymorphism in the COI sequence divided B. globosus into six haplotypes (C1–C6). However, AkInt3 sequencing studies showed high polymorphisms, classifying 81 B. globosus snails into 44 haplotypes (H1–H44). These haplotypes were separated into three haplogroups (I–III). AkInt3 sequence heterozygosity was also found. DNA recombination haplotypes between haplogroups were commonly found in heterozygous samples. AkInt3 sequence studies showed high levels of genetic polymorphism and heterozygosity, supporting its use as a genetic marker for elucidating the population genetics of B. globosus. Furthermore, our study showed that B. globosus populations in Kenya form a “species complex”. © 2025 by the authors.

Nutraceutical Evaluation of Trigonelline's Therapeutic Potential by Targeting Bladder Cancer Stem Cells and Cancer-Associated Fibroblasts via Downregulation of TGFβ3/GLI2/YAP1 Signaling Hub

International Journal of Medical Sciences Open Access Volume 22, Issue 5, Pages 1194 - 12072025

Kao C.-C.; Shih J.-W.; Kim Huynh H.T.L.; Chang C.-H.; Lawal B.; **Iamsaard S.**; Azizah N.; Ritmaleni R.; Lin J.K.-Y.; Huang P.-Y.; Wu A.T.H.; Liu M.-C.

Abstract

Trigonelline (TGN), an alkaloid identified in medicinal plants such as coffee (Coffea spp.) and fenugreek (Trigonella foenum-graecum), has demonstrated significant anticancer properties across various malignancies, yet its efficacy in bladder cancer (BLCA) remains underappreciated. This study investigates TGN's role in modulating cancer stem cells (CSCs) and the tumor microenvironment (TME), two key contributors to BLCA progression and chemoresistance. Through comprehensive bioinformatics analyses of BLCA patient datasets, a TGY signature (TGFβ3, GLI2, YAP1) was identified as a critical signaling hub associated with poor prognosis, therapeutic resistance, and CSC generation. Computational docking studies revealed TGN's high binding affinity to the TGY signature, TGFβ3 (ΔG =-3.9 kcal/mol), GLI2 (ΔG =-4.2 kcal/mol), YAP1 (ΔG =-3.4 kcal/mol), suggesting its potential to disrupt this signaling axis. In vitro experiments demonstrated that TGN effectively inhibited BLCA cell proliferation, colony formation, and tumorspheroid growth while significantly enhancing cisplatin sensitivity in resistant cell lines. Notably, TGN reduced the transformation of fibroblasts into cancer-associated fibroblasts (CAFs) through the downregulation of α-SMA and FAP (Fibroblast activation protein) expression, indicating its capacity to normalize the TME. Real-time PCR analysis revealed that TGN treatment significantly reduced markers of epithelial-mesenchymal transition and stemness pathways. Our preclinical mouse study demonstrated that combining TGN and cisplatin significantly reduced tumorigenesis in cisplatin-resistant bladder tumoroids harboring CAFs. Importantly, this combination therapy showed no apparent systematic toxicity, suggesting a favorable safety profile. Our findings reveal novel molecular targets of TGN in bladder cancer; TGN acts as a potent disruptor of the TGY signaling axis and a normalizer of the TME by reducing CAF transformation. In sum, our findings advocate for TGN's further exploration as a candidate for combination therapy in drug-resistant BLCA, with the potential to improve patient outcomes by simultaneously targeting both CSCs and the TME, serving as a foundation for future clinical trials. © The author(s).

Optimal Timing for Postanesthesia Care Unit Discharge Using Physiological-Based Criteria in In-Patients Undergoing Low-Risk Surgery with General Anesthesia: A Prospective Observational Study

Journal of Health Science and Medical Research Open Access Volume 43, Issue 11 January 2025 Article number 20241128

Taesiri W.; Phusawat S.; Chairatana L.; Nintakarn R.; Paksiri W.; Thabthim P.; Kaewhan J.; Sangsungnern P.

Abstract

Objective: All postanesthesia patients must be monitored in the postanesthesia care unit (PACU) until they meet PACU discharge protocols. These included both physiological-based discharge (PBD) criteria and time-based discharge (TBD) criteria. The efficacy of using only PBD criteria to determine PACU discharge remains unclear. Therefore, this study aimed to determine the optimal timing for PACU discharge using PBD criteria alone for in-hospital patients undergoing low-risk surgeries. Material and Methods: This was a prospective observational study, involving 532 patients who had undergone elective low-risk surgery under general anesthesia (GA). At the PACU, the following data points were recorded: patient demographics, anesthesia and surgical data, the time required to meet PBD criteria, the actual PACU discharge time, complications during PACU admission, and causes of delayed PACU discharge. This study analyzed the comparison between the average time to meet PBD criteria and the 'actual' PACU discharge time. Results: A total of 532 patients admitted to the PACU were enrolled in this study. The mean PBD time was 12.6± 8.4 minutes, and the mean actual PACU time was 65.1±15.5 minutes: a difference that was statically significant [mean difference 52.5 (51.1, 54.0) minutes, p-value<0.001]. No severe complications were observed. Severe pain was the most recorded complication during PACU admission. The highest cause of delayed PACU discharge was the unavailability of hospital patient transporters. Conclusion: The PACU discharge time for in-hospital patients undergoing low-risk surgery under GA, based on PBD criteria, was significantly shorter than that based on TBD criteria; additionally, no severe complications were reported. © 2024 JHSMR.

Outcomes for Patients with Obesity Undergoing Adrenalectomy for Pheochromocytoma: An International Multicenter Analysis

Annals of Surgical Oncology Volume 32, Issue 3, Pages 1709 - 1720 March 2025

Verhoeff K.; Parente A.; Wang Y.; Wang N.; Wang Z.; Śledziński M.; Hellmann A.; Raffaelli M.; Pennestrì F.; Sywak M.; Papachristos A.J.; Palazzo F.F.; Sung T.-Y.; Kim B.-C.; Lee Y.-M.; Eatock F.; Anderson H.; Iacobone M.; Daukša A.; Makay O.; Turk Y.; Atalay H.B.; van Dijkum E.J.M.N.; Engelsman A.F.; Holscher I.; Materazzi G.; Rossi L.; Becucci C.; Shore S.L.; Fung C.; Waghorn A.; Mihai R.; Balasubramanian S.P.; Pannu A.; Tatarano S.; Velázquez-Fernández D.; Miller J.A.; Serrao-Brown H.; Chen Y.; Demarchi M.S.; Djafarrian R.; Doran H.; Wang K.; Stechman M.J.; Perry H.; Hubbard J.; Lamas C.; Mercer P.; MacPherson J.; **Lumbiganon S.**; Calatayud M.; Hanzu F.A.; Vidal O.; Araujo-Castro M.; Ojeda C.M.; Papavramidis T.; de Vera Gómez P.R.; Aldrees A.; Altwjry T.; Valdés N.; Álvarez-Escola C.; García Sanz I.; Blanco Carrera C.; Manjón-Miguélez L.; De Miguel Novoa P.; Recasens M.; García Centeno R.; Robles Lázaro C.; Van Den Heede K.; Van Slycke S.; Michalopoulou T.; Aspinall S.; Melvin R.; Lau J.W.L.; Cheah W.K.; Tang M.H.; Oh H.B.; Ayuk J.; Sutcliffe R.P.

Abstract

Objective: The impact of obesity on outcomes after adrenalectomy for pheochromocytoma is unclear. This study aims to evaluate outcomes after minimally invasive and open adrenalectomy for pheochromocytoma in patients with obesity and to determine factors that may affect outcomes. Summary Background Data: Patients undergoing adrenalectomy for pheochromocytoma in 46 international centers between 2012 and 2022 were reviewed, analyzing baseline information, length of hospital stay (LOS), and postoperative complications. Patients and Methods: Obese (body mass index (BMI) ≥ 30 kg/m2) and nonobese patients were compared. Multivariable analysis was utilized to evaluate outcomes and risk factors for complications, LOS, and increased comprehensive complication index (CCI). Results: Of the 2016 patients, 639 (31.7%) had obesity. Operative time (110.0 versus 105.0 min; p = 0.467), conversion to open rate (3.1% versus 4.7%; p = 0.079), estimated blood loss (20.0 versus 20.0 ml, p = 0.088), rate of complications (19.3% versus 20.8%; p = 0.425), and CCI were similar. However, patients with obesity required a median of 1 day longer LOS (4.0 days versus 5.0 days; p < 0.001). On multivariable analysis, obesity was not significantly associated with complications or higher CCI. Analyzing solely obese patients, laparoscopic (OR 0.24; p < 0.001) and robotic (OR 0.22; p = 0.011) approaches were independently associated with less morbidity. Additionally, multivariable modeling demonstrated that a retroperitoneal approach in patients with BMI ≥ 30 kg/m2 was independently associated with reduced CCI (− 3.74; p = 0.017). Similar results were demonstrated when analyzing severe obesity (BMI ≥ 35). Conclusions: Obesity does not increase complications or CCI following pheochromocytoma resection, but it does increase LOS. A retroperitoneal approach may uniquely benefit patients with obesity. In view of rising obesity rates, these results warrant further research to validate findings. © Society of Surgical Oncology 2024.

Outcomes in the Asian subgroup of the phase III randomised HIMALAYA study of tremelimumab plus durvalumab in unresectable hepatocellular carcinoma

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Pages 258 - 267February 2025

Lau G.; Abou-Alfa G.K.; Cheng A.-L.; **Sukeepaisarnjaroen W.**; Van Dao T.; Kang Y.K.; Thungappa S.C.; Kudo M.; Sangro B.; Kelley R.K.; Furuse J.; Park J.-W.; Sunpaweravong P.; Fasolo A.; Yau T.; Kawaoka T.; Azevedo S.; Reig M.; Assenat E.; Yarchoan M.; He A.R.; Makowsky M.; Gupta C.; Negro A.; Chan S.L.

Abstract

Background & Aims: In the global, phase III HIMALAYA study in unresectable hepatocellular carcinoma (uHCC), STRIDE (Single Tremelimumab Regular Interval Durvalumab) improved overall survival (OS) vs. sorafenib; durvalumab was non-inferior to sorafenib. HBV is the predominant HCC aetiology in most of Asia vs. HCV or non-viral aetiologies in Western countries and Japan. This analysis evaluated safety and efficacy outcomes for STRIDE and durvalumab monotherapy vs. sorafenib, in HIMALAYA participants enrolled in Asia, excluding Japan. Methods: In HIMALAYA, participants were randomised to STRIDE, durvalumab, or sorafenib. The Asian subgroup in this analysis included participants enrolled in Hong Kong, India, South Korea, Taiwan, Thailand, and Vietnam. OS, objective response rate (ORR; per RECIST, version 1.1), and safety were assessed in the Asian subgroup and in an exploratory subgroup of participants in Hong Kong and Taiwan. Results: The Asian subgroup included 479 participants randomised to STRIDE (n = 156), durvalumab (n = 167), or sorafenib (n = 156). OS was improved for STRIDE vs. sorafenib (hazard ratio [HR] 0.68; 95% CI 0.52-0.89). The OS HR for durvalumab vs. sorafenib was 0.83 (95% CI 0.64-1.06). In Hong Kong and Taiwan (n = 141), OS HRs for STRIDE vs. sorafenib and durvalumab vs. sorafenib were 0.44 (95% CI 0.26-0.77) and 0.64 (95% CI 0.37-1.08), respectively. In the Asian subgroup, ORR (including unconfirmed responses) was numerically higher for STRIDE (28.2%) and durvalumab (18.6%) vs. sorafenib (9.0%), and Grade 3/4 treatment-related adverse events were numerically lower for STRIDE (19.9%) and durvalumab (13.3%) vs. sorafenib (30.5%). Conclusions: STRIDE improved outcomes vs. sorafenib in the Asian subgroup. These results support the benefits of STRIDE for participants with uHCC globally, including in the Asia-Pacific region. Clinical trial number: NCT03298451. Impact and implications: The global, phase III HIMALAYA study found that the STRIDE (Single Tremelimumab Regular Interval Durvalumab) regimen improved overall survival (OS), including long-term OS vs. sorafenib, and that durvalumab monotherapy was non-inferior to sorafenib in participants with unresectable hepatocellular carcinoma (uHCC). However, there are differences in the aetiology and clinical practices related to HCC in parts of Asia, compared to Western countries and Japan, which could lead to differences in treatment outcomes between these regions. The results of this analysis demonstrate the benefits of STRIDE for participants in the Asia-Pacific region, consistent with the full, global study population. Overall, these findings continue to support the use of STRIDE in a diverse population, reflective of uHCC globally. © 2024 The Authors

Overcoming language barriers in film production: the role of VR-based learning in English proficiency

Frontiers in Education Open Access Volume 102025
Article number 1493442

Piayura O.; **Boonmas T.**; Wongphongkham N.; Sae-joo P.; Narongchai W.; Wongphongkham H.; Promphakping B.; Rahman M.A.

Abstract

Virtual Reality (VR) has promptly transformed educational practices, presenting immersive environments that boost learning experiences. However, it must be noted that even though earlier research highlights the possible role of VR in language learning as a viable medium, it still stands as a largely unexplored area due to lack of understanding of its potential and limitations. This research is fueled by the shift toward using digital educational resources during the time of the corona virus pandemic and it focuses on the contribution of VR toward the improvement of English skills within the context of the film industry in Thailand. The study created a VR App called “EngLab for Film” that has 10 interactive units related to film making. Using structured questionnaires, quantitative data were collected and analyzed with SPSS to assess engagement, motivation, and independent learning outcomes. Findings reveal that VR-based learning fosters motivation and enhances vocabulary acquisition, offering a dynamic alternative to traditional methods. However, technical limitations, such as video clarity, require further refinement. This study underscores VR's transformative potential in language education, providing actionable insights for its integration into specialized professional contexts. The findings indicate that VR can significantly enhance language skills and motivation, though technical and content-related improvements are needed. Copyright © 2025 Piayura, Boonmas, Wongphongkham, Sae-joo, Narongchai, Wongphongkham, Promphakping and Rahman.

Partially purified Strongyloides ratti antigen improved the diagnostic performance of strongyloidiasis by enzyme-linked immunosorbent assay (ELISA) and immunochromatographic test (ICT)

Microbiology Spectrum Open AccessVolume 13, Issue 3March 2025

Wongphutorn P.; Worasith C.; Kopolrat K.Y.; **Eamudomkarn C.; Pitaksakulrat O.; Hongsrichan N.**; Tippayawat P.; Techasen A.; Sithithaworn J.; Homsombut T.; Odermatt P.; Noordin R.; Sithithaworn P.

Abstract

Strongyloides stercoralis infection is a neglected tropical disease with a global distribution. Serodiagnosis is a sensitive method, but improving its performance and simplifying into a point-of-care test (POCT) are needed. This study aimed to improve the diagnostic performance of serological tests using partially purified Strongyloides ratti antigen in an enzyme-linked immunosorbent assay (ELISA) and an immunochromatographic test (ICT). Crude S. ratti antigen was purified by an IgG affinity column to partition the antigen into flow-through, washing fraction (WF), and elution fractions. Optimized ELISA and ICT using crude and antigen fractions were used to analyze sera from three groups of subjects. Group 1 comprised subjects with proven strongyloidiasis, Group 2 were subjects with other parasitic infections, and Group 3 were negative parasitic infections. The diagnostic performance and Kappa agreement of the serological tests were analyzed and compared, using larvae detection as the reference test (fecal examination). The results showed that the WF was the most efficient antigen in terms of sensitivity and specificity, as determined by the ELISA and ICT. Kappa's agreement between fecal examination and WF-ELISA was moderate (Kappa = 0.52), and WF-ICT was almost perfect (Kappa = 0.94). The WF antigen reduced cross-reactivity to other parasitic infections, that is, Opisthorchis viverrini, Taenia spp., and hookworms, compared to crude S. ratti antigen when assessed by ELISA and ICT. We concluded that the WF of purified S. ratti improved the ELISA and ICT diagnostic performance, and the latter assay format could be used as a POCT for screening and controlling strongyloidiasis. IMPORTANCE This study aimed to improve the serological diagnosis of strongyloidiasis, a disease caused by infection with the intestinal nematode Strongyloides stercoralis, by evaluating the impact of Strongyloides ratti antigen purification using an IgG affinity column for detecting parasite-specific IgG in serum via enzyme-linked immunosorbent assay (ELISA) and immunochromatographic test (ICT) formats. Compared to crude S. ratti antigen, the washing fraction (WF) of the purified antigen demonstrated significantly improved sensitivity and specificity in both ELISA and ICT, achieving strong diagnostic concordance with the gold-standard fecal examination. Furthermore, the WF antigen fraction exhibited reduced cross-reactivity with coinfections caused by the liver fluke (Opisthorchis viverrini), tapeworms (Taenia spp.), and hookworms. These findings underscore antigen purification as a promising strategy to enhance the accuracy of strongyloidiasis serodiagnosis. Copyright © 2025 Wongphutorn et al.

Pharmacokinetics, safety and efficacy of elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide in children with HIV aged from 2 years and weighing at least 14 kg

Journal of the International AIDS SocietyOpen AccessVolume 28, Issue 2
February 2025 Article number e26414

Natukunda E.; Gaur A.H.; **Kosalaraksa P.**; Hellström E.; Strehlau R.; Liberty A.; Cox S.; Leisegang R.; Palaparthy R.; Crowe S.; Vieira V.; Kersey K.; Rakhmanina N.

Abstract

Introduction: Elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide (E/C/F/TAF) was efficacious and well tolerated in children/adolescents with HIV (aged ≥6 years, weighing ≥25 kg) in a Phase 2/3 study. Here, we report data from children aged ≥2 years and weighing ≥14–<25 kg. Methods: This is an analysis of data from the youngest cohort in an open-label, multicentre, multi-cohort, single-group, international study of children/adolescents with HIV. Participants in this cohort were children aged ≥2 years, weighing ≥14–<25 kg at screening and able to swallow tablets, on stable antiretroviral therapy with virologic suppression (HIV-1 RNA <50 copies/ml for ≥6 consecutive months) and a CD4 count ≥400 cells/μl. Eligible participants received low-dose E/C/F/TAF (90/90/120/6 mg) once daily through Week 48. The study included pharmacokinetic evaluation of the low-dose E/C/F/TAF tablet at Week 2. Safety, efficacy, palatability and acceptability were also evaluated. Results: Between 16 January and 25 November 2019, 27 participants were enrolled with a median (quartile [Q]1, Q3) age of 6 (4, 8) years, body weight of 19.3 (17.0, 20.5) kg, CD4 count of 1061 (895, 1315) cells/μl and CD4 cell percentage of 37.4 (30.6, 40.3). Most (92.6%) participants acquired HIV through vertical transmission. On 6 October 2020 (data-cut), median (Q1, Q3) exposure to E/C/F/TAF was 48.3 (48.0, 60.1) weeks. Pharmacokinetic parameters were within the safe and efficacious range of previous data in adult and paediatric populations. Drug-related treatment-emergent adverse events occurred in 4/27 (15%) participants. There were no Grade 3/4 adverse events, or adverse events leading to E/C/F/TAF discontinuation. One participant experienced a serious treatment-emergent adverse event (Grade 2 pneumonia not considered E/C/F/TAF related). Virologic suppression (US FDA Snapshot algorithm) was maintained by 26/27 (96%) participants at Weeks 24 and 48. At Week 48, most children reported positive palatability (84.6%) and acceptability (96.2%). Conclusions: These data support the use of single-tablet E/C/F/TAF (90/90/120/6 mg) regimen for the treatment of HIV in children aged ≥2 years and weighing ≥14–<25 kg. Clinical Trial Number: NCT01854775. © 2025 Gilead Sciences, Inc. and The Author(s). Journal of the International AIDS Society published by John Wiley & Sons Ltd on behalf of International AIDS Society.

Phenotypes of headache in patients with obstructive sleep apnea

Scientific ReportsOpen AccessVolume 15, Issue 1December 2025
Article number 4806

Tripakornkusol V.; Sinsopa N.; Khamsai S.; Sawanyawisuth K.

Abstract

Obstructive sleep apnea (OSA), characterized by repeatedly collapse of upper airway while sleeping, is a common disease; estimated to have a prevalence of 57% in adults. Headache is a common neurological symptom and can be bothersome. A meta-analysis found that 33% of patients with OSA may have headaches. There is limited data on risk factors for having headache in patients with OSA. This study aimed to find risk factors or phenotypes of headache in patients with OSA. This was a retrospective analytical study. The inclusion criteria were adult patients with age of 18 years or over and diagnosed as OSA by polysomnography. The primary outcome of this study was a symptom of headache. Predictors for headache in patients with OSA were executed by stepwise method of multivariable logistic regression analysis. There were 213 patients with OSA met the study criteria. Of those, 52 patients (24.41%) had headache. The most common type of headache was tension type (27 patients; 51.92%), followed by non-specific type (22 patients; 42.31%), and migraine type (3 patients; 5.77%). There were four significant factors including dyspnea, fatigue, dizziness, and macroglossia. Dyspnea had the highest adjusted odds ratio at 3.29 (95% confidence interval of 1.25, 8.54), while macroglossia had the lowest adjusted odds ratio at 2.10 (95% confidence interval of 1.01, 4.43). Patients with OSA who had the following phenotypes of dyspnea, fatigue, dizziness, and macroglossia may have a higher chance of having headache. © The Author(s) 2025.

Potential impact of climate change on Opisthorchis viverrini and Opisthorchis felineus transmission in Eurasia

Acta Tropica Volume 263 March 2025 Article number 107574

Sripa B.; Yurlova N.; **Suwannatrai A.T.**; Serbina E.; Tangkawattana S.; Sayasone S.; Varnakovida P.

Abstract

Human liver flukes of the family Opisthorchiidae, particularly Opisthorchis viverrini and Opisthorchis felineus, are major foodborne trematode parasites endemic to the Lower Mekong River Basin (Southeast Asia) and the Ob-Irtysh Basins (southern Western Siberia, Russian Federation), respectively. Together, these parasites infect over 14 million people, with an estimated 300 million at risk. Their transmission cycles involve Bithynia snails and Cyprinidae fish as first and second intermediate hosts, respectively, with humans and other fish-eating mammals serving as definitive hosts. The geographical distribution of these flukes is shaped by specific Bithynia species: B. siamensis, B. s. goniomphalos, and B. funiculata for O. viverrini, and B. troschelii, B. leachi, and B. inflata for O. felineus. Climate change directly influences liver fluke transmission by affecting parasite survival, host biology, and environmental conditions. Bithynia snails are highly temperature-sensitive, and O. viverrini transmission is notably temperature-dependent, with a 1 °C increase raising infection odds by 5.4 %. Temperatures exceeding 30 °C reduce cercarial survival and infectivity. In Western Siberia, favorable water temperatures for O. felineus transmission start at +15 °C, with higher temperatures leading to an increased infection rate in snails while permafrost regions lack Bithynia snails entirely. Projections from the Intergovernmental Panel on Climate Change (IPCC) indicate that warming will exceed the global average in northern Asia (affecting O. felineus) and approach the global average in Southeast Asia (impacting O. viverrini). These trends suggest that climate change may have a more pronounced impact on O. felineus transmission in Siberia than on O. viverrini transmission in Southeast Asia. This review provides an in-depth discussion of Bithynia biology and the effects of temperature on snail growth, cercarial release, survival, infection, and aestivation, emphasizing how global warming could influence the transmission dynamics of these liver flukes. © 2025 Elsevier B.V.

Predicting 28-day all-cause mortality in patients admitted to intensive care units with pre-existing chronic heart failure using the stress hyperglycemia ratio: a machine learning-driven retrospective cohort analysis

Cardiovascular Diabetology Open Access Volume 24, Issue 1 December 2025
Article number 10

Li X.-H.; Yang X.-L.; Dong B.-B.; Liu Q.

Abstract

Chronic heart failure (CHF) poses a significant threat to human health. The stress hyperglycemia ratio (SHR) is a novel metric for accurately assessing stress hyperglycemia, which has been correlated with adverse outcomes in various major diseases. However, it remains unclear whether SHR is associated with 28-day mortality in patients with pre-existing CHF who were admitted to intensive care units (ICUs). This study retrospectively recruited patients who were admitted to ICUs with both acute critical illness and pre-existing CHF from the Medical Information Mart for Intensive Care (MIMIC) database. Characteristics were compared between the survival and non-survival groups. The relationship between SHR and 28-day all-cause mortality was analyzed using restricted cubic splines, receiver operating characteristic (ROC) curves, Kaplan–Meier survival analysis, and Cox proportional hazards regression analysis. The importance of the potential risk factors was assessed using the Boruta algorithm. Prediction models were constructed using machine learning algorithms. A total of 913 patients were enrolled. The risk of 28-day mortality increased with higher SHR levels ($P < 0.001$). SHR was independently associated with 28-day all-cause mortality, with an unadjusted hazard ratio (HR) of 1.45 ($P < 0.001$) and an adjusted HR of 1.43 ($P < 0.001$). Subgroup analysis found that none of the potential risk factors, such as demographics, comorbidities, and drugs, affected the relationship (P for interaction > 0.05). The area under the ROC (AUC) curve for SHR was larger than those for admission blood glucose and HbA1c; the cut-off for SHR was 0.57. Patients with SHR higher than the cut-off had a significantly lower 28-day survival probability ($P < 0.001$). SHR was identified as one of the key factors for 28-day mortality by the Boruta algorithm. The predictive performance was verified through four machine learning algorithms, with the neural network algorithm being the best (AUC 0.801). For patients with both acute critical illness and pre-existing CHF, SHR was an independent predictor of 28-day all-cause mortality. Its prognostic performance surpasses those of HbA1c and blood glucose, and prognostic models based on SHR provide clinicians with an effective tool to make therapeutic decisions. © The Author(s) 2025.

Predicting falls with ultrasound, physical parameters or fall-risk questions among older adults: A prospective cohort study

American Journal of Emergency MedicineVolume 91, Pages 132 - 138May 2025

Liu S.W.; **Thatphet P.**; Wongtangman T.; McFadden K.; Vivian R.; Morone C.C.; Parente J.; Santangelo I.; Gray M.; Shokoohi H.; Al Saud A.; Gullikson J.; Hines R.; Perkisas S.

Abstract

Background: Falls are a significant issue among older adults, leading to morbidity and mortality. Screening for fall risk in the ED is crucial but challenging due to time limitations and patient conditions. Sarcopenia, characterized by muscle loss, is associated with increased fall risk, and ultrasound has been proposed as a non-invasive tool to measure muscle mass in this context. Methods: This prospective cohort study enrolled 174 older adults from an urban teaching hospital's EDOU, assessing muscle mass via POCUS, grip strength, Timed Up and Go (TUG) test, and fall risk using the STEADI toolkit. The patients were followed up over six months to assess if they had fallen or not. Results: Follow-up identified 37 participants (21 %) as patients who fell. There was no significant association between POCUS-measured muscle mass, grip strength, or TUG test performance with future falls. In contrast, STEADI questionnaire responses demonstrated significant differences between patients who fell and did not fall, suggesting its potential utility in predicting fall risk in this population. Conclusion: The simpler tool, the STEADI questionnaire, may offer more practicality in screening fall risk compared to complex ultrasound measurements or physical performance tests among the older in ED. © 2024 Elsevier Inc.

Predictive value of venous bicarbonate levels for survival to hospital discharge in out-of-hospital cardiac arrest patients

International Journal of Emergency Medicine Open Access Volume 18, Issue 1 December 2025 Article number 45

Phungoen P.; O'Donnell J.M.; **Tosibphanom J.; Kotruchin P.; Phurisetthasak T.; Tangpaisarn T.**

Abstract

Background: Acid-base disturbances significantly impact cardiac function and prognostic outcomes in cardiac arrest. Previous studies have highlighted the correlation between pH levels from arterial blood gas (ABG) analyses during cardiopulmonary resuscitation (CPR) in out-of-hospital cardiac arrest (OHCA) and survival outcomes. However, ABG measurements are often impractical in resource-limited settings. This study explores the relationship between serum bicarbonate levels and survival outcomes in patients with OHCA. Methods: This retrospective cohort study examined patients with OHCA who presented at Srinagarind Hospital (Thailand) between 2015 and 2021. We analyzed venous bicarbonate levels and other laboratory markers (Na+, K+, BUN, Creatinine). Demographic and clinical data were extracted from electronic medical records. The primary objective was to assess the association between venous bicarbonate levels and survival and to determine the optimal cutoff values for predicting survival in these patients. Results: Of the 461 identified patients, 19% survived hospital discharge. Survivors exhibited higher bicarbonate and BUN levels but lower potassium levels. Bicarbonate levels ≥ 12.6 demonstrated a sensitivity of 74% and specificity of 47%, with an 88.44% negative predictive value (NPV) for survival. A sensitivity analysis, which reclassified patients who left against medical advice as non-survivors, revealed that a bicarbonate cutoff of 13.9 mmol/L yielded the best predictive value, with a sensitivity of 93.8% and a specificity of 52.1%. Factors associated with increased survival included BUN ≥ 19.5, bicarbonate ≥ 12.6, private transport, and initial PEA or VT/VF rhythms, while potassium ≥ 5.1 decreased survival likelihood. Conclusion: Bicarbonate levels, particularly with a threshold greater than 12.6 mmol/L, may be effective prognostic indicators. Other factors influencing survival include BUN, potassium levels, private transport, and initial cardiac rhythm. These insights can help clinicians improve resuscitation strategies and prognosis assessment, especially in resource-limited settings. © The Author(s) 2025.

Prednisolone impairs trabecular bone score changes in adolescents with 21-hydroxylase deficiency

Clinical and Experimental Pediatrics Volume 68, Issue 3, Pages 238 - 246
March 2025

Wiromrat P.; Raruenrom Y.; Namphaisan P.; Wongsurawat N.; Panamonta O.; Pongchaiyakul C.

Abstract

Background: Individuals with 21-hydroxylase deficiency (21OHD) require lifelong glucocorticoid (GC) therapy, which increases their risk of fragility fractures. However, fractures in GC-treated individuals can occur at normal bone mineral density (BMD) levels, suggesting an alteration in the bone microarchitecture. Purpose: To evaluate trabecular bone microarchitecture and its changes in adolescents with 21OHD. Methods: We enrolled 38 adolescents with 21OHD for whom complete clinical data and baseline and follow-up lumbar spine BMD (LSBMD) measurements were available. The mean duration was 1.5±0.6 years. Trabecular bone score (TBS), an indirect measurement of bone microarchitecture, was analyzed using iNsight software version 3.0. Impaired BMD and TBS were defined as z scores ≤-1.5. Results: At baseline, participants (55% female; 68% salt-wasting type; mean age, 15.2±3.8 years; bone age, 17.5± 2.8 years; mean GC dose, 18.5±6.5 mg/m2/day) had the prevalence of impaired BMD and TBS of 5% and 18%, respectively. During follow-up, adolescents with 21OHD receiving prednisolone showed a lower annual percentage change in TBS than those who received hydrocortisone (P=0.028). A stepwise regression analysis showed that body mass index percentile (P<0.001) and testosterone concentration (P=0.002) were independent positive predictors of the baseline TBS z score, whereas prednisolone use was the only negative predictor of the annual percentage change in TBS (P=0.002). Conclusion: Adolescents with 21OHD have a high prevalence of impaired bone microarchitecture. Further-more, prednisolone therapy is associated with impaired bone microarchitecture development, suggesting that hydrocortisone may better preserve bone microarchitecture and should be considered the first-line treatment for this population. © 2025 by The Korean Pediatric Society.

Pre-existing Lambert-Eaton Myasthenic Syndrome and Scleroderma in a Patient with Neuroendocrine Carcinoma Undergoing Immune Checkpoint Inhibitor Cancer Immunotherapy

Journal of NeuroimmunologyOpen AccessVolume 39815 January 2025 Article number 578485

Vorasoot N.; Halfdanarson T.R.; Madigan N.N.; Dubey D.; Thanarajasingam U.; Zekeridou A.

Abstract

Introduction: Paraneoplastic neurological syndromes (PNS) can worsen with immune checkpoint inhibitor (ICI) cancer immunotherapy. Case report: A 66-year-old female with paraneoplastic Lambert-Eaton Myasthenic Syndrome (LEMS), which led to the diagnosis of metastatic neuroendocrine carcinoma, was treated with intravenous immune globulin (IVIg) (with minimal response), chemotherapy, and radiation, resulting in neurological improvement. However, sclerodermatous changes developed after a year. Due to cancer progression, dual ICI therapy was initiated, and the patient remained stable for eight months until the progression of both LEMS and cancer, ultimately leading to death. Discussion: This case highlights the challenges of managing pre-existing PNS during ICI therapy, emphasizing the need for a multidisciplinary approach and the consideration of unusual clinical presentations in therapeutic decision-making. © 2024

Prevalence and predictive factors for obesity, sarcopenia and sarcopenic obesity in patients with chronic stroke

World Academy of Sciences JournalOpen AccessVolume 7, Issue 2 March 2025
Article number 24

Nimphan C.; Arayawichanon P.; Somboonporn C.; Saengsuwan J.

Abstract

Muscle mass loss occurs early following a stroke, and the rate of decline is more rapid than the normal ageing process. The aim of the present study was to examine the prevalence of and predictive factors for obesity, sarcopenia and sarcopenic obesity (SO) in patients with stroke. Patients with chronic stroke with a duration >6 months were recruited. Their clinical data were recorded, and dual-energy X-ray absorptiometry was used to evaluate body composition. Multivariable logistic regression analysis was used to analyse predictive factors for obesity, sarcopenia and SO. A total of 84 participants (58 males and 26 females) with a median age of 58.3 years were enrolled. The median duration following stroke was 2.2 years. The prevalence of obesity, sarcopenia and SO was 26.2, 21.4 and 23.8%, respectively. Age, sex, National Institutes of Health Stroke Scale, Oral Health Assessment Tool, Functional Ambulation Category (FAC), calf circumference, and Mini Nutritional Assessment-Short Form (MNA-SF) score were included as independent factors. Multivariable logistic regression analysis revealed that only calf circumference was a predictive factor for obesity [adjusted odds ratio (aOR), 1.38, 95% confidence interval (CI), 1.08-1.77]. As regards sarcopenia, two factors were found to be significant: The MNA-SF score (aOR, 0.70; 95% CI, 0.53-0.94) and calf circumference (aOR, 0.66; 95% CI, 0.49-0.89). Significant predictive factors for SO were being male (aOR 7.96; 95% CI, 1.05-60.49) and FAC (aOR, 0.15; 95% CI, 0.04-0.55). Sarcopenia and SO were observed in almost half of the participants with chronic stroke. On the whole, calf circumference was found to be a predictor for both obesity and sarcopenia. The nutritional status assessed using MNA-SF was a predictor for sarcopenia. The male sex and FAC were found to be predictive factors for SO. Copyright © 2025 Nimphan et al.

Prevalence and Survival Impact of Venous and Arterial Thrombosis among Multiple Myeloma Patients in Single Tertiary Care Center of Thailand: 5-Year Retrospective Review

Indian Journal of Hematology and Blood Transfusion 2025

Hongtongsagool P.; Teawtrakul N.; Wanitpongpun C.; Lanamtieng T.; Tuntibundit P.; Phiphitaporn P.

Abstract

Data remain limited regarding thrombosis among Thai patient with multiple myeloma patients and who experience thromboembolic events face a higher mortality rate compared to those without such complications The primary objective is to determine the prevalence of symptomatic venous and arterial thrombosis in Thai multiple myeloma patients, with secondary objectives including identifying survival impact of thrombosis and associated factors of thrombosis. The study includes newly diagnosed multiple myeloma patients from the single site of tertiary care center in Thailand between 2018 and 2022. Of the 146 enrolled patients, The prevalence of symptomatic venous thromboembolism, arterial thrombosis, and both thromboses were 8.22%, 1.37%, and 0.68% respectively. No difference of overall survival between thrombotic and non-thrombotic groups, the 3 years overall survival rates among multiple myeloma patients with and without thrombotic events were 0.6 [95%CI: 0.37–0.97] and 0.63 [95%CI: 0.54–0.73] respectively. In multivariable logistic regression analysis thromboprophylaxis seemed to be associated with lower risk of thrombotic events in our patient population [OR: 0.05] without increase risk of bleeding. The prevalence of symptomatic venous thromboembolism and arterial thrombosis among Thai multiple myeloma patients was relatively low. Thromboprophylaxis is protective factor for thrombosis without increased risk of bleeding. There is no survival impact of thrombosis in multiple myeloma patient. © Indian Society of Hematology and Blood Transfusion 2024.

Programmed Cell Death Ligand 1 (PD-L1) and Major Histocompatibility Complex Class I (MHC Class I) Expression Patterns and Their Pathologic Associations in Triple-Negative Breast Cancer

Breast Cancer: Targets and Therapy Open Access Volume 17, Pages 123 - 1432025

Kaewkedsri P.; Intarawichian P.; Jessadapattarakul S.; Kunprom W.; Koonmee S.; Thanee M.; Somintara O.; Wongbuddha A.; Chadbunchachai P.; Nawapun S.; Aphivatanasiri C.

Abstract

Purpose: This study aims to investigate the clinicopathological characteristics of triple-negative breast cancer (TNBC) in relation to programmed cell death ligand 1 (PD-L1) and major histocompatibility complex class I (MHC class I) expression, with a focus on their prognostic significance. Patients and Methods: A retrospective analysis was conducted on formalin-fixed paraffin-embedded (FFPE) tissue samples from 148 TNBC patients diagnosed between 2008 and 2021. Immunohistochemical analysis evaluated PD-L1 and MHC class I expression. PD-L1 was assessed using Combine Positive Scores (CPS), with the threshold set at CPS ≥ 1 and CPS ≥ 10. MHC class I expression was categorized into low and high levels. Associations between these markers, clinicopathological features, overall survival (OS), and disease-free survival (DFS) were analyzed. PD-L1 expression was also compared between older FFPE blocks (2008–2018) versus newer blocks (2019–2021). Results: PD-L1 expression was observed in 29.1% of cases with a Combined Positive Score (CPS) ≥1 and 8.8% of CPS ≥10 cases. MHC class I expression was evenly split between low and high levels. Older FFPE blocks (2008–2018) showed lower PD-L1 expression than newer blocks (2019–2021). There was no significant association between PD-L1 expression and overall survival (OS) or disease-free survival (DFS). However, high MHC class I expression was strongly associated with improved OS (HR = 0.469, 95% CI: 0.282–0.780, p=0.004). Patients with negative PD-L1 and high MHC class I expression had the most favorable prognosis, with significant OS for CPS ≥1 (HR = 0.447, 95% CI: 0.236–0.846, p=0.013) and CPS ≥10 (HR = 0.516, 95% CI: 0.307–0.869, p=0.013). Conclusion: These findings support the potential of PD-L1 and MHC class I expression as prognostic markers for TNBC, offering insights to guide treatment decisions and improve patient outcomes. © 2025 Kaewkedsri et al.

Protein-Bound Polysaccharide K (PSK)-Rich Extract of Lentinus Polychrous Exhibits Anticancer Activity by Apoptosis Induction and Cell Cycle Arrest in Cholangiocarcinoma Cells

Trends in SciencesOpen AccessVolume 22, Issue 1January 2025
Article number 8806

Jantra J.; Attarat J.; Srikoon P.; Chueaiphuk C.; **Wongkham S.**; Phimsen S.

Abstract

Cholangiocarcinoma (CCA) is an uncommon adenocarcinoma of the bile duct epithelial. There is no standard regimen yet for patients with adequate performance status. Therefore, effective agents are necessary. Recently, protein-bound polysaccharide K (PSK) has shown a great anticancer potential. L. polychrous is a Thai local edible mushroom that traditionally used as a folk medicine for treatments of fever and inflammation. This study aimed to identify the PSK from hot water extract of L. polychrous and examine the anticancer activity against a CCA cell line KKU-213A. The PSK were quantified by ELISA and characterized using SDS-PAGE, glycoprotein staining kit, and western blot analysis. The antioxidant activity was assessed by DPPH assay. Cytotoxic effect against KKU-213A was assessed by MTT assay. Apoptosis and cell cycle were analyzed by flow cytometry. The highest PSK levels were found in L. polychrous extract compared with the other 14 mushroom species which purified PSK is approximately 70 kDa of glycoprotein. The hot water extract of L. polychrous showed strong antioxidant activity. The cell viability of KKU-213A cells was significantly inhibited with L. polychrous extract at an IC50 value of 3.31 ± 0.09 mg/mL. In addition, the induction of cell cycle arrest at S and G2/M phases was observed together with induction of apoptosis, and mitochondrial membrane dysfunction in concentration-dependent manner. Hence the L. polychrous extract is the great source of PSK with strong antioxidant activity and exhibits anti-CCA effects through cell cycle arrest and apoptotic induction. © 2025, Walailak University. All rights reserved.

Proteomic characterization and comparison of the infective and adult life stage secretomes from Necator americanus and Ancylostoma ceylanicum

PLoS Neglected Tropical DiseasesOpen AccessVolume 19, Issue 1
January 2025 Article number e0012780

Wong Y.; Rosa B.A.; Becker L.; Camberis M.; Legros G.; Zhan B.; Bottazzi M.E.; Fujiwara R.T.; Ritmejeryte E.; **Laha T.; Chaiyadet S.**; Taweethavonsawat P.; Brindley P.J.; Bracken B.K.; Giacomin P.R.; Mitreva M.; Loukas A.

Abstract

More than 470 million people globally are infected with the hookworms Ancylostoma ceylanicum and Necator americanus, resulting in an annual loss of 2.1 to 4 million disability-adjusted-life-years. Current infection management approaches are limited by modest drug efficacy, the costs associated with frequent mass drug administration campaigns, and the risk of reinfection and burgeoning drug resistance. Subunit vaccines based on proteins excreted and secreted (ES) by hookworms that reduce worm numbers and associated disease burden are a promising management strategy to overcome these limitations. However, studies on the ES proteomes of hookworms have mainly described proteins from the adult life stage which may preclude the opportunity to target the infective larva. Here, we employed high resolution mass spectrometry to identify 103 and 57 ES proteins from the infective third larvae stage (L3) as well as 106 and 512 ES proteins from the adult N. americanus and A. ceylanicum respectively. Comparisons between these developmental stages identified 91 and 41 proteins uniquely expressed in the L3 ES products of N. americanus and A. ceylanicum, respectively. We characterized these proteins based on functional annotation, KEGG pathway analysis, InterProScan signature and gene ontology. We also performed reciprocal BLAST analysis to identify orthologs across species for both the L3 and adult stages and identified five orthologous proteins in both life stages and 15 proteins that could be detected only in the L3 stage of both species. Last, we performed a three-way reciprocal BLAST on the L3 proteomes from both hookworm species together with a previously reported L3 proteome from the rodent hookworm Nippostrongylus brasiliensis, and identified eight L3 proteins that could be readily deployed for testing using well established rodent models. This novel characterization of L3 proteins and taxonomic conservation across hookworm species provides a raft of potential candidates for vaccine discovery for prevention of hookworm infection and disease. © 2025 Wong et al.

Radiation safety assessment of patient and staff during intracranial aneurysm treatment: A phantom study

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May-August 2025

Punikhom P.; Kirisattyakul W.; Prabsattroo T.; Munkong W.; Pattum P.; Karawek R.; Awikunprasert P.; Pungkun V.

Abstract

Background: Endovascular treatment using coiling embolization for intracranial aneurysms is common in interventional neuroradiology (INR). However, it is associated with high radiation exposure to both patients and medical staff. The assessment and management of radiation risk have been a concern. Objective: To evaluate patient and scatter radiation doses at INR staff working position during the coiling embolization procedure in a phantom study. Materials and methods: An anthropometric phantom from head to pelvis was placed on an angiographic table. To determine the phantom's entrance skin dose (ESD), 19 NanoDot optically stimulated luminescence dosimeters (OSLDs) were placed on the surface of the head phantom. Moreover, 6 NanoDot OSLDs were also placed on the surface of the phantom at 3 critical organs (eyes, thyroid, ovaries). To determine the scatter radiation dose at staff working position, polyvinyl chloride pipes (150 cm height) were placed at the position of all staff, including interventional radiologist (IR), radiology resident (RR), scrubbed nurse (SN), radiologic technologist (RT), circulating nurse (CN), and nurse anesthetists (AN). The InLight® OSLDs were placed on each PVC pipe at 50, 100, and 150 cm height from the floor level. Coiling embolization was simulated following the standard procedure using a bi-plane digital subtraction angiography unit with standard radiation protective equipment. The patient doses from the radiation dose structured report (RDSR) were also recorded. Results: The highest ESDs were observed in the occipital part (1,631.56±36.97 mGy). These ESD peaks were also observed within the safety limit and produced no skin reaction. The radiation dose at the left eye was observed to be the highest value among critical organs. The highest scatter radiation dose was observed at the position of IR at 100 cm level. Among CN, AN, and RT positions, the highest dose was recorded at the RT position at the level of 150 cm. The RDSR showed that most of the patient radiation dose was received from the 2-dimension angiography. Conclusion: The distribution of radiation dose varied across different staff positions. As the key person conducting the coiling embolization procedure, the IR position received the highest radiation dose. Thus, close monitoring and development of additional radiation protection methods for this position are essential. Although the radiation dose at the back of the head was elevated, it remained within safety limits. Nevertheless, the monitoring of potential radiation effects should not be neglected. © 2025, Faculty of Associated Medical Sciences, Chiang Mai University. All rights reserved.

Retrospective Analysis of the Thai Percutaneous Coronary Intervention Registry: Impacts of Center Volume and Operator Experience on Outcomes

Catheterization and Cardiovascular Interventions Open Access Volume 105, Issue 2, Pages 442 - 455February 2025

Chandavimol M.; Limpijankit T.; Srimahachota S.; Buddhari W.; Tantisiriwat W.; **Kiatchoosakun S.**; Pitaksuteepong T.; Siriyotha S.; Thakkinstian A.; Sansanayudh N.

Abstract

Background: Percutaneous coronary intervention (PCI) outcomes can vary due to various factors, including patient clinical condition, complexity of coronary lesions, expertise of operators, and quality of the PCI center. Aims: This study evaluated the influence of PCI center volume and operator experience on patient outcomes after the procedure. Methods: Retrospective data on demographic, clinical details, and outcomes for all patients undergoing PCI across 39 hospitals in Thailand from 2018 to 2019 were retrieved. PCI center volume was categorized based on annual number of interventions: low (< 200), intermediate (200–499), and high (≥ 500). Operator experience was assessed by years of practice (low [< 5] and high [≥ 5]) and the number of PCI cases performed annually (low [< 75] and high [≥ 75]). The evaluated PCI outcomes were: PCI failure; procedural complications; PCI-related in-hospital mortality; 1 year post-intervention all-cause mortality. Results: A total of 19,701 patients who underwent PCI were included in the analysis, of whom 17,432 had follow-up data available after 1 year. Of these, 58.1% presented with either ST-elevation or non-ST elevation myocardial infarction/unstable angina, while 41.9% had stable CAD. Nearly half of the patients had triple-vessel or left-main disease, and 8.7% presented with cardiogenic shock. The percent with PCI failure, procedural complications, PCI-related in-hospital death, and 1-year all-cause mortality were 4.9%, 5.1%, 2.7%, and 11.8%, respectively. Despite patients in higher-risk profiles being treated at high-volume PCI centers and by experienced operators, there were no significant differences in PCI failure, PCI-related in-hospital mortality nor 1-year all-cause mortality compared to those treated at low or intermediate volume PCI centers. However, high-volume PCI centers had procedural complications more frequently (4.7%) than did intermediate (3.9%) and low-volume (2.5%) centers ($p < 0.001$). After adjusting for confounding factors, no significant associations were found between PCI center volume and PCI outcome. Similarly, no significant relationship was found between operator experience and procedural complications, nor 1-year all-cause mortality. Nevertheless, operators with more years of practice were associated with lower PCI-related in-hospital mortality (odds ratio [95% CI] of 0.75 (0.57, 0.98); $p < 0.038$). Additionally, operators conducting a higher number of PCIs annually tended to have less PCI failures (odds ratio [95% CI] of 0.76 (0.57, 1.01); $p = 0.062$). Conclusion: A center's PCI volume did not significantly impact PCI outcome. In contrast, operator experience did impact outcomes. This result highlights areas for improvement and can help reform strategies for national PCI systems at both center and operator levels. © 2024 The Author(s). Catheterization and Cardiovascular Interventions published by Wiley Periodicals LLC.

SAFETY AND IMMUNOGENICITY OF A NEXT GENERATION PURIFIED VERO RABIES VACCINE AS A SIMULATED INTRADERMAL POST-EXPOSURE PROPHYLAXIS IN ADULTS AND CHILDREN IN THAILAND: A PHASE 3, RANDOMIZED STUDY

Southeast Asian Journal of Tropical Medicine and Public HealthVolume 56, Issue 1, Pages 90 - 1238 January 2025

Chansinghakul D.; **Mootsikapun P.**; Limkittikul K.; Jiang Q.; Petit C.; Valero E.; Vangelisti M.; Pineda-Peña A.-C.; Frago C.

Abstract

The aim of this Phase 3, randomized study was to assess the immunogenicity and safety of a purified Vero cell rabies vaccine, PVRVNG2, compared with the current rabies standard of care vaccine (PVRV), using a simulated post-exposure prophylaxis regimen with intradermal (ID) vaccination on day (D) 0, D3, D7, and D28 in healthy pediatric (≥1 to <18 years of age) and adult (≥18 years of age) participants, with concomitant administration of rabies immunoglobulin [RIG]). Rabies virus neutralizing antibody (RVNA) titers were determined on D0, D14, D42, and D90. Enrolled participants (n = 402) consisted of pediatrics (n = 168) divided into two groups, Group 1 receiving PVRV-NG2 (n = 112) and Group 2 receiving PVRV (n = 56), and of adults (n = 234) divided into 4 groups, Group 3 receiving PVRV-NG2+equine RIG (ERIG, n = 26), Group 4 receiving PVRV+ERIG (n = 14), Group 5 receiving PVRV-NG2+human RIG (HRIG, n = 129), and Group 6 receiving PVRV+HRIG (n = 65). By D14, nearly all pediatric participants achieved RVNA titer ≥0.5 IU/ml, while only 52-75% of adults achieved this titer when both vaccines were co-administered with RIGs. By D42, 96 and 100% of adults who received PVRV-NG2 and PVRV respectively, had RVNA titers ≥0.5 IU/ml. By D90, all, except two, pediatric participants had RVNA titers that persisted at ≥0.5 IU/ml, while 75 and 78% of adults who received PVRV-NG2 and PVRV respectively, had maintained this titer. No safety concerns were identified, and safety profiles were similar across groups. Overall, the immunogenicity and safety profiles of PVRV-NG2 when administered alone or co-administered with HRIG were comparable with those of PVRV, supporting the application of intradermal administration for post-exposure vaccination using the updated Thai Red Cross vaccination schedule (Clinicaltrials.gov no: NCT04478084). © 2025, SEAMEO TROPMED Network. All rights reserved.

Salivary attenuated total reflectance-fourier transform infrared spectroscopy combined with chemometric analysis: A potential point-of-care approach for chronic kidney disease screening

Photodiagnosis and Photodynamic TherapyVolume 52April 2025
Article number 104502

Tangwanichgapong K.; Klanrit P.; Chatchawal P.; Wongwattanakul M.; **Pongskul C.**; Chaichit R.; Hormdee D.

Abstract

Background: The increasing prevalence of chronic kidney disease (CKD) and its terminal stage, end-stage renal disease (ESRD), raises the importance of an accurate, early, and point-of-care method to diagnose and monitor patients. Saliva is a potential point-of-care diagnostic biofluid for its simple collection and ability to reflect systemic health status. This study investigated salivary spectral signatures in ESRD patients and their diagnostic potential compared to healthy controls. Methods: Saliva samples were collected from 24 ESRD patients undergoing hemodialysis and 24 age/sex-matched healthy controls. The dried saliva samples were analyzed using Attenuated Total Reflectance-Fourier Transform Infrared (ATR-FTIR) spectroscopy in the 4000–400 cm^{-1} range. Chemometric analyses, including Principal Component Analysis (PCA) and Partial Least Squares Discriminant Analysis (PLS-DA), were applied to preprocessed spectra to identify discriminatory spectral features and establish classification models. Results: Second derivative spectroscopic analysis of ATR-FTIR spectra revealed distinctive spectral patterns in dried ESRD saliva samples, including characteristic peak shifts observed in both the amide I secondary structures (from 1636 cm-1 in controls to 1629 cm-1 in ESRD) and carbohydrate (from 1037 cm-1 in controls to 1042 cm-1 in ESRD) regions. PCA demonstrated clear clustering patterns across key biological spectral regions, including the lipid CH stretching region (3000–2800 cm−1), the fingerprint region (1800–900 cm−1), and their combination (3000–2800 cm−1 + 1800–900 cm−1). PLS models based on the fingerprint region achieved optimal diagnostic performance (87.5–100 % accuracy, 75–100 % sensitivity, and 100 % specificity). Biochemical markers associated with ESRD revealed variations in lipids, protein, sugar moieties, carbohydrates, and nucleic acids, reflecting the underlying pathological changes in CKD, with the most prominent band at 1405 cm-1. Conclusion: ATR-FTIR analysis of dried saliva demonstrated potential as a non-invasive diagnostic tool for ESRD. This approach could complement existing diagnostic methods, particularly in resource-limited settings or for frequent monitoring requirements. © 2025 The Author(s)

Sensory outcome of exotropia surgery in Thailand: a retrospective multicenter study

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February 2025

Rattanalert N.; Tengtrisorn S.; Surukrattanaskul S.; **Wongwai P.**; Wangtiraumnuay N.; Wuthisiri W.; Thitiwichienlert S.; Ployprasith W.; Pornchaisuree R.; Saksiriwutto P.; Singha P.; Thiamthat W.; Pukrushpan P.; Suwannaraj S.; Imsuwan Y.; Pornseth A.; Wiwatwongwana A.; Teerakapong O.; Hiriotappa J.; Lekskul A.; Nganthavee V.; Nunthanid P.; Honglertnapakul W.; Srimanan W.; Jiaranaisilawong P.; Patikulsila P.; Tangtammaruk P.; Tatritorn D.; Jiwanarom T.; Pruksacholavit J.; Preechaharn P.; Atchaneeyasakul L.-O.; Keokajee P.; Surachatkumtonekul T.; Phamonvaechavan P.; Wutthiphan S.; Aryasit O.; Damthongsuk P.; Geater A.F.

Abstract

AIM: To evaluate the characteristics of exotropia (XT) and motor-sensory outcomes after surgical correction and to determine the factors associated with sensory outcomes of XT surgery. METHODS: The medical records of all patients that were diagnosed with XT and underwent strabismus surgery in 13 major government hospitals in Thailand; from January 2012 to December 2019, were retrospectively reviewed. Univariable and multivariable logistic regression were performed to identify factors related to binocular vision. RESULTS: Data of five hundred and thirty-seven patients were analyzed. Two hundred and twenty-six patients were men (42.1%). The median age of onset was 3 years old [Interquartile range (IQR): 1, 8]. The median age at diagnosis was 9.21 years old (IQR; 4.64, 21.06). intermittent exotropia [X(T)] was the most common type (52.1%); 19.5% of the patients had amblyopia. For refractive error, spherical equivalent refraction on right eye (RE) and left eye (LE) were -0.53±2.45 diopters (D) (range -14.88 to +10 D) and -0.48±2.37 D (range -19.50 to +7.75 D), respectively. The mean angle of deviation at distance and near before surgery were 42.06±14.91 prism diopters (PD) and 40.81±16.09 PD, respectively. Follow-up time after first operation was 2.48±2.27y. Four hundred sixty-two patients (86%) needed only one operation and 299 (55.6%) patients had bilateral lateral rectus recession. At final visit, the mean angles of deviation at distance and near decreased to 5.76±8.96 PD and 5.01±8.73 PD, respectively. After surgery, two hundred seventy-three patients (50.8%) were evaluated for binocular function, but the others did not have result. From multivariable logistic regression in 273 patients, the factors related to better binocular function were type of XT which was X(T) [adjusted odds ratio (aOR) 10.35; 95%CI: 4.73, 22.66] compared to constant XT, without amblyopia (aOR 3.97; 95%CI: 1.84, 8.53), underwent only single operation compared with more than 1 operation (aOR 3.80, 95%CI: 1.58, 9.16), the angle of deviation at near in last visit less than 10 PD better than 10–30 PD with aOR 0.42 (95%CI: 0.18, 0.96) and type of refraction revealed isometropia better than anisometropia with aOR 4.13 (95%CI: 1.19, 14.32). CONCLUSION: The surgical outcomes of XT within one operation in Thailand is 86%. The factors related to achieve binocular function includes type of XT as X(T), without amblyopia, angle of deviation at final visit less than 10 PD, isometropia type of refraction and underwent only one surgical correction. © 2025 International Journal of Ophthalmology (c/o Editorial Office). All rights reserved.

Serum N-Glycomics with Nano-LC-QToF LC-MS/MS Reveals N-Glycan Biomarkers for Glioblastoma, Meningioma, and High-Grade Meningioma

Journal of Proteome Research Open Access Volume 24, Issue 3, Pages 1402 - 14137
March 2025

Silsirivanit A.; Alvarez M.R.S.; Grijaldo-Alvarez S.J.; Gogte R.; **Kitkhuandee A.; Piyawattanametha N.; Seubwai W.; Luang S.; Panawan O.; Mahalapbutr P.; Vaeteewoottacharn K.; Sawanyawisuth K.; Let-Itthiporn W.; Saengboonmee C.; Duangthongphon P.; Jingjit K.; Pankongsap A.; Waraasawapati S.; Aphivatanasiri C.;** Lebrilla C.B.

Abstract

Alteration of glycosylation in cancer cells leads to the expression of tumor-associated glycans, which can be used as biomarkers for diagnosis and prognostic prediction of diseases. In this study, we used nano-LC-QToF to identify serum N-glycan biomarkers for the detection of brain tumors. We observed an increase in sialylated N-glycans and a decrease in fucosylated N-glycans in the serum of patients with glioblastoma (GBM) and meningioma (MG) compared to healthy individuals. In GBM, a combination of increased serum sialylated N-glycan (6_4_0_2 compound) and decreased fucosylated N-glycan (4_4_1_0 compound) was identified as the most appropriate panel, with an area under the curve (AUC) of 0.8660, 78.95% sensitivity, 84.21% specificity, and 82.89% accuracy. For MG, a combination of decreased 6_6_2_0 and 5_5_2_0 compounds and increased 4_4_1_1 compound achieved an AUC of 0.9260, 82.35% sensitivity, 78.57% specificity, and 80.26% accuracy for diagnosis of MG. Additionally, an increase in 5_5_1_0 and 4_3_0_0 compounds combined with a decrease in 7_7_4_3 was associated with high-grade MG (WHO grades II-III). In conclusion, we identified serum N-glycan profiles associated with brain tumors, highlighting their potential as biomarkers for the diagnosis and prognosis of these diseases. © 2025 The Authors. Published by American Chemical Society.

Sex and stature estimations from dry femurs of Northeastern Thais: Using a logistic and linear regression approach

Translational Research in Anatomy Volume 38March 2025
Article number 100376

Boonthai W.; Poodendaen C.; Kamwong J.; Sangchang P.; Duangchit S.; **Iamsaard S.**

Abstract

Background: Sex determination and stature estimation from skeletal remains are still crucial components in creating biological profiles in forensic anthropology. The femur is particularly valuable due to its high sexual dimorphism and correlation with stature. This study aimed to develop sex estimation models and stature reconstruction equations using femoral measurements in a Northeastern Thai population. Materials and method: The 400 dry femora were measured for its six parameters including femur maximum length (FL), femoral shaft length (FSL), femur epicondylar breadth (FEB), femur maximum head diameter (FHD), femur midshaft circumference (FMC) and femur weight (FW). Then all parameters were analyzed by using logistic regression for sex estimation and linear regression for stature reconstruction. Results: Results showed significant sexual dimorphism across all measured parameters, with FHD being the best predictor of sex (correction rate, 88.5 %). The optimized multivariate model achieved the highest accuracy (91.0 %). For stature estimation, sex-specific equations demonstrated superior accuracy compared to combined-sex models. The FL and FSL showed the strongest correlations with stature. Conclusion: This study demonstrated the importance of population-specific standards in forensic anthropology of the femur's reliability as a valuable tool for both sex determination and stature estimation. These results contribute significantly to forensic practice in Thailand, enhancing the accuracy of biological profile reconstruction in medicolegal investigations. © 2024 The Authors

Short-Term High Temperature Alters psbA Gene Expression and D1 Protein Related Photosystem II Function in Rice Seedlings

Journal of Agronomy and Crop Science Volume 211, Issue 2March 2025
Article number e70043

Paethaisong W.; Suksawat M.; **Jirahiranpat A.; Phetcharaburanin J.**; Wannapat S.; Theerakulpisut P.; Dongsansuk A.

Abstract

High temperature disrupts physiological processes in rice, including impairing the function of photosystem II and leading to reduced productivity. However, understanding of the short-term effects of elevated temperatures on photosystem II function and its protein composition in rice seedlings remains limited. This study examined the effect of short-term exposure to elevated temperature (25°C–40°C) on photosystem II function, photosynthetic pigments, psbA gene expression and D1 protein in three rice seedlings, namely Dular, IR64 and KDML105. The findings revealed that a short-term temperature of 30°C–35°C activated photosystem II function, as reflected by improved photosystem II efficiency and increased levels of photosynthetic pigments. In contrast, a temperature of 40°C impaired and suppressed photosystem II function. A short-term temperature of 40°C activated the psbA gene expression and D1 protein synthesis in Dular, while inhibiting these processes in IR64 and KDML105. This suggested that short-term temperatures between 30°C and 35°C were ideal for photosystem II function at the metabolic level, whereas 40°C adversely affected photosystem II function. At the molecular level, Dular demonstrated rapidly repaired psbA gene expression and D1 protein synthesis, with high activity observed after short-term exposure to 40°C. Meanwhile, IR64 and KDML105 experienced significant molecular damage under the same conditions. These findings proved Dular as heat-tolerant, whereas IR64 and KDML105 were classified as heat-sensitive and moderately heat-sensitive, respectively. © 2025 Wiley-VCH GmbH. Published by John Wiley & Sons Ltd.

Silencing of O-GlcNAc Transferase Attenuated O-GlcNAcylation and Metastatic Potentials of Melanoma Cells Through Suppression of Akt-NFκB Signaling Pathway

ChemBioChem Volume 26, Issue 814 April 2025 Article number e202400896

Kanchanangkul N.; Panawan O.; Teeravirote K.; Ma-In P.; Mahalapbutr P.; Luang S.; Seubwai W.; Lert-itthiporn W.; Kaewkong W.; **Vaeteewoottacharn K.; Wongkham S.**; Roytrakul S.; **Silsirivanit A.**

Abstract

O-GlcNAcylation is an important biological process in regulating the function of many nucleocytoplasmic proteins in cells. Enhancement of O-GlcNAcylation was associated with cancer development and progression. Here, we demonstrated the involvement of O-GlcNAcylation in melanoma metastasis. Using the data from GEO database, we found that O-GlcNAcylation and its related enzymes, including glutamine fructose-6-phosphate amidotransferase (GFAT), O-GlcNAc transferase (OGT), and O-GlcNAcase (OGA); were elevated in metastatic melanoma compared with primary tumors and normal tissues. Functional analyses in melanoma cell lines – MNT-1, SK-MEL-28, and A-375 showed that suppression of O-GlcNAcylation by siRNA against OGT significantly reduces the migration and invasion abilities of the cells. Phosphorylation of Akt and NFκB was drastically suppressed after the knockdown of OGT, suggesting the role of O-GlcNAcylation in regulating the Akt-NFκB signaling pathway. In addition, we found that the NFκB target genes, such as ZEB-2 and MCT-1, were significantly upregulated in metastatic tumors compared with primary tumors. MCT-1 expression in melanoma tissues was also correlated with the O-GlcNAcylation level. Taken together, we have demonstrated in this study the possible role of O-GlcNAcylation in controlling melanoma metastasis via upregulating MCT-1 expression through activation of the Akt-NFκB signaling pathway. © 2025 Wiley-VCH GmbH.

Single-cell immunopathology of recurrent acute generalized exanthematous pustulosis associated with vancomycin

Journal of Allergy and Clinical Immunology: GlobalOpen AccessVolume 4, Issue 2
May 2025 Article number 100426

Mukherjee E.M.; Gibson A.; Krantz M.S.; Gangula R.; Palubinsky A.M.; Boyd A.S.; Zwerner J.P.; Dewan A.K.; **Nakkam N.**; Konvinse K.C.; Li Y.; Ram R.; Chopra A.; Phillips E.J.

Abstract

Background: Acute generalized exanthematous pustulosis (AGEP) is a severe cutaneous adverse reaction to medication that presents within 72 hours of exposure with erythematous papules and plaques with overlying pustules. The immunopathogenesis and predisposing factors of AGEP are not well characterized. Objective: To better understand the genetic risk factors and single-cell immunopathogenesis of AGEP, we longitudinally characterized a patient with recurrent AGEP after an initial episode triggered by vancomycin. Methods: A clinical timeline over an 8-year period was paired with skin testing, histopathology, and immunogenetic and other testing at 3 time points. Skin biopsies performed on affected skin (positive vancomycin-delayed intradermal testing [IDT]) and unaffected control skin 8 years after the initial event were subjected to single-cell sequencing to measure gene and protein expression. Results: The patient was HLA-A∗32:01 positive, which has been associated with vancomycin-induced drug reaction with eosinophilia and systemic symptoms. IDT remained positive over time, despite recurrent reactions without drug exposure. Clinical features and histopathology of IDT-positive skin were consistent with AGEP. Single-cell analysis of affected skin showed polyclonal TH17-like cells with gene expression signatures similar to T-cell response during prevalent infectious diseases. Conclusions: This patient exhibited persistent vancomycin-positive IDT despite distinct nondrug episodes of ALEP/AGEP. This suggests that AGEP may be triggered by both antigen-specific and non–antigen-specific factors. AGEP-affected skin showed an inflammatory infiltrate with a TH17-like effector population, which may represent potentially actionable targets for therapeutic intervention. The presence of HLA-A∗32:01, a defined risk factor for vancomycin-induced drug reaction with eosinophilia and systemic symptoms, may indicate a shared predisposition, warranting further study. © 2025 The Author(s)

Stature estimation and sex determination from contemporary Northeastern Thai clavicles using discriminant function and linear regression analyses

Translational Research in Anatomy Open Access Volume 38
March 2025 Article number 100383

Poodendaen C.; Namwongsakool P.; **Iamsaard S.; Tangsrisakda N.; Samrid R.; Chaimontri C.**; Boonthai W.; Duangchit S.

Abstract

Background: Reliable methods for stature estimation and sex determination are still needed for anthropologists to identify other skeletal remains for applying in forensic cases when the skull or pelvis disappears or is severely damaged. The clavicle is known to have high sexual dimorphism because of its anatomical features including size and shape. High variability of clavicle has significant forensic application in many populations except the modern Northeastern Thais. This study aimed to develop the discriminant function analysis to estimate stature and sex dimorphism from dry clavicles in exploring a potential method for Thai forensic anthropology. Materials and method: Four hundred dry clavicles (200 males, 200 females) identified for sex and height before body donation were measured for six standardized parameters including maximum length of clavicle (MaxL), anterior-posterior width at the acromion end surface (APA), anterior-posterior width at the sternal end surface (APS), superior-inferior width at the acromion end surface (SIA), superior-inferior width at the sternal end surface (SIS), and circumference at the mid-shaft of clavicle (CirMid), respectively. The discriminant function and regression analyses were used for sex determination and stature estimation. Results: All parameters showed significant difference of sexual dimorphism with greater in male dimensions compared to those of females ($p < 0.01$). For sex determination using univariate analysis, the most accuracy rate was of MaxL (83.5 %). In stepwise discriminant function analysis, the four parameters of MaxL, APS, SIS, and CirMid on the right side could enhance the accuracy rate up to 88.5 %. The highest correlation of stature estimation was observed in the combined-sex analysis ($r = 0.73$, $R2 = 0.54$, SEE = 5.78 cm) by using only right MaxL and CirMid parameters. Conclusion: Multi-variable discriminant functions provide more reliability in sex determination while the combined-sex equations is the most effective method to estimate stature for contemporary Northeastern Thais. This novel method can be used to apply in the forensic anthropological analysis for Thai clavicle remain. © 2025 The Authors

Subjective cognitive decline predicts longitudinal neuropsychological test performance in an unsupervised online setting in the Brain Health Registry

Alzheimer's Research and Therapy Volume 17, Issue 1
December 2025 Article number 10

Kang J.M.; **Manjavong M.**; Jin C.; Diaz A.; Ashford M.T.; Eichenbaum J.; Thorp E.; Wragg E.; Zavitz K.H.; Cormack F.; Aaronson A.; Mackin R.S.; Tank R.; Landavazo B.; Cavallone E.; Truran D.; Farias S.T.; Weiner M.W.; Nosheny R.L.

Abstract

Backgrounds: Digital, online assessments are efficient means to detect early cognitive decline, but few studies have investigated the relationship between remotely collected subjective cognitive change and cognitive decline. We hypothesized that the Everyday Cognition Scale (ECog), a subjective change measure, predicts longitudinal change in cognition in the Brain Health Registry (BHR), an online registry for neuroscience research. Methods: This study included BHR participants aged 55 + who completed both the baseline ECog and repeated administrations of the CANTAB® Paired Associates Learning (PAL) visual learning and memory test. Both self-reported ECog (Self-ECog) and study partner-reported ECog (SP-ECog), and two PAL scores (first attempt memory score [FAMS] and total errors adjusted [TEA]) were assessed. We estimated associations between multiple ECog scoring outputs (ECog positive [same or above cut-off score], ECog consistent [report of consistent decline in any item], and total score) and longitudinal change in PAL. Additionally we assessed the ability of ECog to identify 'decliners', who exhibited the worst PAL progression slopes corresponding to the fifth percentile and below. Results: Participants (n = 16,683) had an average age of 69.07 ± 7.34, 72.04% were female, and had an average of 16.66 ± 2.26 years of education. They were followed for an average of 2.52 ± 1.63 visits over a period of 11.49 ± 11.53 months. Both Self-ECog positive (estimate = -0.01, p < 0.001, R^2m = 0.56) and Self-ECog consistent (estimate=-0.01, p = 0.002, R^2m = 0.56) were associated with longitudinal change in PAL FAMS after adjusting demographics and clinical confounders. Those who were Self-ECog total (Odds ratio [95% confidence interval] = 1.390 [1.121–1.708]) and SP-ECog consistent (2.417 [1.591–3.655]) had higher probability of being decliners based on PAL FAMS. Conclusion: In the BHR's unsupervised online setting, baseline subjective change was feasible in predicting longitudinal decline in neuropsychological tests. Online, self-administered measures of subjective cognitive change might have a potential to predict objective subjective change and identify individuals with cognitive impairments. © The Author(s) 2024.

The COOL-AF Phase 2 Registry: COhort of Antithrombotic Use and Clinical Outcomes in Atrial Fibrillation Patients

JACC: Asia Open Access Volume 5, Issue 1P2, Pages 191 - 202 January 2025

Krittayaphong R.; Winijkul A.; Rungpradubvong V.; Apiyasawat S.; Phrommintikul A.; Chantrarat T.; Methavigul K.; Chichareon P.; **Makarawate P.**; Wongtheptien W.; Kaolawanich Y.; Lip G.Y.H.

Abstract

Background: Atrial fibrillation (AF) is a common condition leading to an increased risk of death and complications such as stroke. Even though direct oral anticoagulants (DOACs) can reduce the risk of ICH, the rate of DOAC use remains low in many Asian countries because of cost concerns. Objectives: The purpose of this protocol paper of the COOL-AF (COhort of antithrOmbotic use and cLinical outcomes in patients with Atrial Fibrillation) Phase 2 registry is to determine the rate of clinical outcome, changes in antithrombotic patterns, and their impact on clinical outcomes, and to develop a prediction model for clinical outcomes. Methods: The COOL-AF Phase 2 study is a prospective observational multicenter study of patients with known or newly diagnosed nonvalvular AF in Thailand. The aim is to achieve a sample size of 3,667 patients from 33 centers. Patients will be followed up every 6 months for up to 3 years. Data collection on and doses of oral anticoagulants (warfarin, dabigatran, rivaroxaban, apixaban, and edoxaban) and antiplatelets are collected. The study outcomes include death, ischemic stroke/systemic embolism, major bleeding, myocardial infarction, heart failure, and quality of life. All events will be adjudicated. Results: Enrollment started in June 2024. The results of the COOL-AF phase 2 registry will be reported when enrollment is complete and one year of follow-up data is available. Conclusions: The COOL-AF Phase 2 trial will provide valuable information about the real-world practice of AF management and outcomes in Asia, which should be able to improve AF outcomes in the future. (COhort of antithrOmbotic Use and cLinical Outcomes in Patients With Atrial Fibrillation [COOL-AF] Phase 2; NCT06396299) © 2025 The Authors

The diagnostic performance of automatic B-lines detection for evaluating pulmonary edema in the emergency department among novice point-of-care ultrasound practitioners

Emergency Radiology Open Access Volume 32, Issue 2, Pages 241 - 246 April 2025

Ienghong K.; Cheung L.W.; **Gaysonsiri D.; Apiratwarakul K.**

Abstract

Purpose: B-lines in lung ultrasound have been a critical clue for detecting pulmonary edema. However, distinguishing B-lines from other artifacts is a challenge, especially for novice point of care ultrasound (POCUS) practitioners. This study aimed to determine the efficacy of automatic detection of B-lines using artificial intelligence (Auto B-lines) for detecting pulmonary edema. Methods: A retrospective study was conducted on dyspnea patients treated at the emergency department between January 2023 and June 2024. Ultrasound documentation and electronic emergency department medical records were evaluated for sensitivity, specificity, positive likelihood ratio, and negative likelihood ratio of auto B-lines in detection of pulmonary edema. Results: Sixty-six patients with a final diagnosis of pulmonary edema were enrolled, with 54.68% having positive B-lines in lung ultrasound. Auto B-lines had 95.6% sensitivity (95% confidence interval [CI]: 0.92–0.98) and 77.2% specificity (95% CI: 0.74–0.80). Physicians demonstrated 82.7% sensitivity (95% CI: 0.79–0.97) and 63.09% sensitivity (95% CI: 0.58–0.69). Conclusion: The auto B-lines were highly sensitive in diagnosing pulmonary edema in novice POCUS practitioners. The clinical integration of physicians and artificial intelligence enhances diagnostic capabilities. © The Author(s) 2025.

The effect of an educational video on the immediate insertion of postpartum contraceptive implants: A randomized controlled trial

International Journal of Gynecology and Obstetrics Volume 168, Issue 2, Pages 591 - 597 February 2025

Boontor N.; Kaewrudee S.; Sothornwit J.

Abstract

Objective: To assess the impact of an educational video on immediate postpartum contraceptive implant utilization. Methods: This was a randomized controlled study conducted in a university hospital. Postpartum women aged over 18 years were recruited and divided into two groups: the intervention group, which viewed a 7-min educational video about contraceptive implants; and the control group, which did not. We evaluated the uptake of contraceptive implants immediately and during a 12-week period postpartum, in addition to the reasons for not selecting this method. Results: A total of 202 participants were included in the study, 101 in each group. Viewing the educational video was associated with higher immediate postpartum contraceptive implant usage (22.77% vs 10.89%; relative risk [RR] 2.09, 95% confidence interval [CI] 1.08–4.06). However, no significant difference was observed at the postpartum follow-up visit (29.9% vs 25.74%; RR 1.61, 95% CI 0.74–1.82). The primary reasons for not selecting contraceptive implants were concerns about potential side effects and discomfort associated with the insertion procedure. Conclusion: The inclusion of an animated educational video significantly improved immediate postpartum contraceptive implant uptake, making it a potentially viable strategy in settings with high rates of loss to follow-up. However, further research into how to address patients' fears regarding the implant is required. © 2024 International Federation of Gynecology and Obstetrics.

The effects of chat GPT generated exercise program in healthy overweight young adults: A pilot study

Journal of Human Sport and Exercise Open AccessVolume 20, Issue 1, Pages 169 - 179January 2025

Philuek P.; Kusump S.; Sathianpoonsook T.; Jansupom C.; Sawanyawisuth P.; **Sawanyawisuth K.**; Chainarong A.

Abstract

Overweight is an increasing public health issue worldwide. Physical activity may reduce the risks of consequences from overweight. Chat GPT is a potential tool in healthcare projects. This study aimed to evaluate if the chat GPT generated exercise program group (ChatGPT) was effective in overweight persons. This was an intervention study with a randomized controlled fashion. The inclusion criteria were students aged of 18 years or more, male sex, healthy, and had body mass index of 23-24.99 kg/m2. Eligible participants were randomly assigned into two groups by a simple random sampling: control group or ChatGPT group. The intervention was performed for eight weeks and three times/week. The outcomes included weight, cardiovascular endurance, percent fat, percent muscle, flexibility, and lung capacity. There were 9 participants in the study; ChatGPT for 6 persons and control group for 3 persons. At baseline, there was no significant difference of studied variables between both groups. At the end of study, there were three studied variables significantly different between the ChatGPT group and the control group including body mass index, heart rate after standing and knee lifting for three minutes and sit and stand in 30 seconds. The body mass index of the ChatGPT group was significantly lower than the control group (22.99 vs 24.46 kg/m2; p =.020). Chat GPT generated exercise program is feasible for overweight, young adults to lose weight and improve their cardiovascular fitness, muscle fitness, and fat loss. However, further studies are required to confirm the results of this study. © Asociación Española de Análisis del Rendimiento Deportivo.

The forced small finger abduction test for assessing the strength of intrinsic muscles innervated by the ulnar nerve

Journal of Hand Surgery: European Volume2025

Kittipongphat N.; Vinitpairot C.; Jianmongkol S.

Abstract

The study evaluates the forced small finger abduction test for assessing the strength of intrinsic muscles innervated by the ulnar nerve. The test was performed on healthy and ulnar neuropathy patients. Results demonstrate its ability to detect intrinsic weakness, which may enhance diagnosis of ulnar neuropathy. © The Author(s) 2025.

The genome sequence of the liver fluke Opisthorchis viverrini (Poirier, 1886) Stiles & Hassall, 1896

Wellcome Open Research Open Access Volume 102025 Article number 1

Wangwiwatsin A.; Kulwong S.; Phuyao C.; **Titapun A.; Loilome W.; Klanrit P.; Namwat N.; Sithithaworn P.**; Doyle S.R.; Berriman M.; Crellen T.

Abstract

We present a genome assembly from a specimen of Opisthorchis viverrini (liver fluke; Platyhelminthes; Trematoda; Opisthorchiida; Opisthorchiidae). The genome sequence has a total length of 627.20 megabases. Most of the assembly (97.89%) is scaffolded into 6 chromosomal pseudomolecules. The mitochondrial genome has also been assembled and is 18.04 kilobases in length. Copyright: © 2025 Wangwiwatsin A et al.

The validity and reliability of modified cough transport outcome using slower airflow for assessing mucus viscoelasticity

Journal of Associated Medical Sciences Open Access Volume 58, Issue 1, Pages 1 - 7

Nwe A.A.; Kosura N.; Phimphasak C.; Barnludech P.; Aung S.; Chumpangern W.; Hongrattana G.; Kluayhomthong S.; Domthong P.; **Reechaipichitkul W.**; Jaimanee C.; Chatchawan U.; Siritaratiwat W.; Ubolsakka-Jones C.

Abstract

Background: The cough transportability technique reflects changes in mucus rheology. However, the necessity of high airflow rates, such as 8 L/s, to carry out this technique limits its utility, as specialized setups or equipment are required. Objective: This study aims to identify practical alternatives to higher airflow rates and utilize easily accessible equipment, such as mechanical air pumps (2 L/s). Materials and methods: Mucus simulant gel (MSG) of 4 viscoelasticity and sputum from patients with bronchiectasis were collected and prepared. All samples underwent standard airflow cough transport (sCT) and modified cough transport (mCT). Additionally, three rounds of each MSG and two rounds of sputum underwent mCT. Results: A Pearson correlation analysis between mCT and sCT revealed very high ($r=0.986$, $p=0.014$) and high ($r=0.771$, $p<0.001$) in the MSG and the sputum of bronchiectasis patients, respectively. The test-retest reliability of mCT revealed ICCs of 0.997 and 0.926 in the MSG and sputum of patients with bronchiectasis, respectively. Conclusion: mCT could be an alternative to sCT, offering a more accessible option for conducting cough transportability assessments to reflect changes in mucus rheology in airway clearance research. © 2025, Faculty of Associated Medical Sciences, Chiang Mai University. All rights reserved.

Therapeutic potential of Thai Mucuna pruriens (T-MP) seed aqueous extract on acute ethanol-induced behavioral and motor dysfunction

Tropical Journal of Pharmaceutical Research Open Access Volume 24, Issue 2, Pages 195 - 202February 2025

Kaewmor J.; Rungruang S.; Phunikhom K.; Sattayasai J.; Lahnwong C.

Abstract

Purpose: To assess the therapeutic potentials of Thai Mucuna pruriens (T-MP) seed aqueous extract in mitigating acute ethanol-induced behavioral and motor dysfunction in mice. Methods: The mice were orally administered either water or T-MP seed extract (600 mg/kg). One hour after this initial treatment, the mice were given either distilled water or 6 g/kg of 30 % (w/v) ethanol. Thirty minutes following the second treatment, the mice were subjected to behavioral and motor function tests, comprising of the exploratory test, rotarod test, footprint analysis, elevated plus maze (EPM), and tail suspension test (TST), respectively. Results: Ethanol treatment significantly increased anxiety-like behaviors, as evidenced by the exploratory and EPM tests, and depressive behavior, as indicated by prolonged immobility time in the TST ($p < 0.05$). It also reduced the time spent on the rod in the rotarod test and heightened gait abnormalities observed in gait analysis, indicating impaired motor functions. Treatment with T-MP significantly alleviated these ethanol-induced behavioral and motor dysfunctions ($p < 0.05$). Conclusion: Thai Mucuna pruriens seed extract effectively mitigates neurological and behavioral dysfunctions induced by acute ethanol intoxication in mice, highlighting its potential as a neuroprotective agent. Further studies are required to elucidate T-MP's mechanisms in combating symptoms of acute ethanol intoxication, which is crucial for advancing medical and neuropharmacological treatments. © 2025 The authors.

Transition of EMS workflow from radio to bell signals to shorten activation time in multiple casualty incident

Scientific Reports Open Access Volume 15, Issue 1 December 2025
Article number 6889

Apiratwarakul K.; Cheung L.W.; **Prasitphuriprecha M.; Ienghong K.**

Abstract

Multiple casualty incident (MCI) are critical situations mandating an immediate response. Traditionally, members of emergency medical services (EMS) are notified about MCI through radio signals. However, communication failures can lead to delays in activation time of EMS operations. The use of bell signals is proposed as a solution to address these issues. This study uses a retrospective pre-post design evaluating the impact of the bell and radio signal on activation times for EMS operation in MCI. Data were collected from January 2020 to December 2023 and divided into two phases: radio signal use during 2020–2021 (pre-design), and bell signal use during 2022–2023 (post-design). In the event of MCI, the bell or radio is used primarily to alert medical personnel. After the MCI was recognized during the pre-design phase, the dispatcher utilized the radio signal, calling out all EMS personnel twice via radio at 171.425 MHz, with a one-minute interval between communication to notify them of the incident. The ED staff would be informed of these incidents through radio or telephone communication by EMS personnel. In the post-design phase, the dispatcher utilized the bell signal, ringing it three times to alert all staff. Activation time and equipment used by EMS during MCI operations was recorded for both phases. A total of 105 MCI with EMS operations were recorded. In the bell signal group, 52.1% (n = 199) of the participants were male. Mass transportation incidents accounted for the most of the MCI, comprising 73.6% in the bell signal group and 73.1% in the radio signal group. The average activation time was significantly shorter for the bell signal (1.54 min) compared to the radio signal (3.60 min) ($P < 0.001$). The average response time for the bell signal was 13.20 min, while the radio signal response time averaged 16.10 min ($P = 0.042$). Early activation time (less than 2 min after EMS dispatch) was significantly more likely in the Bell signal group (adjusted odds ratio, 1.25; 95% confidence interval, 1.10–2.45) than in the Radio signal group. The activation and response times for EMS operations during MCI were significantly reduced by using bell signals to alert EMS staff. © The Author(s) 2025.

Ultrasonographic characteristics of the shoulder in patients with shoulder pain: A retrospective study comparing younger and older age groups

Journal of back and musculoskeletal rehabilitation Volume 38, Issue 1, Pages 132 - 1381 January 2025

Vongviboonchai A.; Saengsuwan J.; Sirasaporn P.

Abstract

BACKGROUND: Shoulder pain can be caused by structures within the shoulder joint or external structure to shoulder and the prevalence of shoulder pain is high. OBJECTIVE: The purpose was to investigate the ultrasonographic characteristics of patients with shoulder pain and to study the association between age groups (less than 60 years vs. 60 years and above) and commonly found abnormal ultrasonographic findings. METHODS: A retrospective study was conducted on 253 patients experiencing shoulder pain over a month. Data included gender, age, side of pain, pain duration, painful area, previous treatments, clinical assessment of shoulder pain. The abnormal findings in shoulder ultrasound images were reported, and the association between age group with common ultrasound abnormalities were analyzed using the chi-square test. RESULTS: Common abnormal ultrasound findings included subdeltoid bursitis (82.7%), biceps tendon effusion (48.7%), and supraspinatus tendinosis (44.2%). Moreover, patients aged 60 years and above had a significantly higher prevalence of biceps tendon effusion (53.6% vs 36.0%), supraspinatus tendon tear (19.3% vs 8.6%) and subscapularis tendon tear (6.1% vs 1.4%) compared to those aged less than 60 years. CONCLUSION: The common abnormal ultrasound findings in patients with shoulder pain were subdeltoid bursitis, biceps tendon effusion and supraspinatus tendinosis. Patients aged 60 years and above had a significantly higher prevalence of biceps tendon effusion and tears in the supraspinatus and subscapularis tendons.

Unraveling the mechanisms of benzimidazole resistance in hookworms: A molecular docking and dynamics study

Journal of Genetic Engineering and Biotechnology Open Access Volume 23, Issue 1 March 2025 Article number 100472

Tenorio J.C.B.; Heikal M.F.; Kafle A.; Macalalad M.A.B.; Orosco F.L.; **Saichua P.; Suttiprapa S.**

Abstract

Background: Benzimidazole resistance is an emerging challenge among parasitic helminths. It is caused by single nucleotide polymorphisms (SNPs) in specific loci in helminths' β-tubulin genes. Field studies and laboratory investigations reported resistance-associated SNPs in 4 codon locations with 7 allelic variations among hookworms. This study aimed to determine the effects of these mutations on the binding efficiency and behavior of the β-tubulin protein in four hookworm species against four benzimidazole drugs. Methods: β-tubulin gene coding sequences of Ancylostoma caninum, A. duodenale, A. ceylanicum, and Necator americanus were retrieved, assessed phylogenetically, and used to construct the 3D structure models of the proteins. The modeled protein structures were verified and edited to contain the reported SNPs: Q134H, F167Y, E198A, E198K, E198V, F200L, and F200Y. Benzimidazole drugs such as albendazole (ABZ), fenbendazole (FBZ), mebendazole (MBZ) and oxfendazole (OBZ) were used as ligands. Molecular docking experiments were performed with the wild-type and mutated proteins. Molecular dynamics simulation assessed the dynamic behavior of the β-tubulin-benzimidazole complex. Results: In silico docking assessments showed that various amino acid substitutions due to resistance-associated SNPs cause alterations in binding affinities and positions. E198K and Q134H in hookworm β-tubulins substantially weakened the binding affinities and altered the binding positions of benzimidazole drugs. Molecular dynamics analysis revealed that these mutations also caused marked reductions in the binding free energies owing to diminished hydrogen bond contacts with the benzimidazole ligands. Conclusion: The evidence shown herein indicates that mutations at positions 198 and 134 are detrimental to conferring benzimidazole resistance among hookworms. The presence of these mutations may alter the efficacy of pharmacological interventions. Hence, further studies should be conducted to assess their emergence among hookworms in endemic areas with histories of chemotherapy. © 2025 The Author(s)

Unveiling consumer interest and regional disparities: comparative analysis of online search trends for penile aesthetic procedures

Sexual MedicineOpen AccessVolume 13, Issue 11 February 2025 Article number qfaf013

Abou Chawareb E.; Banton J.; Hammad M.A.M.; **Lumbiganon S.**; Azad B.; Miller J.; Yafi F.A.

Abstract

Background: Aesthetic procedures for penile enhancement, such as the Penuma silicone sleeve implant, have gained increasing attention for addressing concerns like perceived size, buried or retractile penis, and mild curvature. Aim: To assess the online search interest over time for penile enhancement modalities, analyze the trends, and explore any regional disparities in search patterns. Methods: Google Trends data from June 18, 2018, to June 11, 2023, were utilized to analyze search interest for Penuma, penile implant, penile girth, Hyaluronic acid (HLA) injection, and penis injection. The results were compared to the trend data for Penuma from 2004 to 2023. Trendlines were generated to assess the changes in search interest over time and determine if they followed a random or polynomial trend. The highest search interest locations were identified for each term, and the corresponding regional gross domestic product values were collected. Outcomes: Search interest was assessed in terms of volume, temporal trends, and regional disparities. Clinical Implications: Understanding regional and temporal search patterns for penile enhancement can guide healthcare professionals and policymakers in developing targeted educational initiatives and allocating resources to meet patient needs. Strengths and Limitations: The use of Google Trends provides a comprehensive and real-time assessment of public interest over a broad timeframe and geographic range. However, search interest data may not fully capture actual patient behaviors or clinical demand, and the analysis relies on assumptions about search terms accurately reflecting consumer intent. Results: Penuma initially garnered interest upon its introduction in 2004 but experienced a decline until around March 2021. Comparing Penuma with other terms, general searches for penile implant and penile girth exhibited significantly higher interest than Penuma. The trendlines indicated increasing search interest for penile implant and HLA injection, while Penuma demonstrated a declining trend. In terms of regional disparities, the highest search interest for Penuma was observed in San Antonio, TX, while penile girth searches were highest in Oklahoma City, OK. Penile implant searches were prominent in Mobile, AL, and Birmingham, AL. Notably, HLA injection searches peaked in New York, NY, and penis injection searches were most prevalent in Los Angeles, CA. Conclusion: This study reveals that online interest in Penuma lags other penile enhancement terms, with notable regional disparities in search patterns. These findings underscore the need for further research to understand the factors influencing these trends and to help healthcare professionals tailor educational efforts and resources to diverse consumer needs. The Author(s) 2025. Published by Oxford University Press on behalf of The International Society for Sexual Medicine.