Scientific Tracks & Sessions
July 01, 2023

Clinical Pediatrics 2023





4th World Congress on

Pediatrics and Clinical Pediatrics

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Pediatric Immunization | Pediatric Infection | General Pediatrics | Pediatric Safety Management

Session Chair: Zhenhuan Liu
Guangzhou University of Chinese Medicine | China

Session Introduction

Title: Title: Targeting ep2-mediated inflammation for neuroblastoma

Jianxiong Jiang | University of Tennessee Health Science Center | USA

Title: Title: Metabolic reprogramming of alveolar macrophages plays an important role in acute lung injury

Bo Liu | Children's Hospital of Chongqing Medical University & Chongqing Medical University | China

Title: Title:The immunoregulation effect of dendritic cells gitrl on asthma with early life lipopolysaccharide pre-exposure

Fengxia Ding |Children's Hospital of Chongqing Medical University & Chongqing Medical University | China

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Targeting ep2-mediated inflammation for neuroblastoma

Jianxiong Jiang
University of Tennessee Health Science Center, USA

Prostaglandin E2 (PGE2), via acting on four G protein-coupled receptors (EP1-EP4), facilitates tumour cell growth, invasion and migration, and nurtures inflammation-enriched microenvironments to favour tumour angiogenesis and immune evasion. However, which EP receptor subtype is directly involved in the development and progression of neuroblastoma, a common pediatric cancer, remains largely unknown. We show the expression of EP2 receptor is highly correlated with neuroblastoma aggressiveness and acts as a dominant Gαs-coupled receptor mediating PGE2-initiated cAMP signalling in human neuroblastoma cells featured with high-risk factors. Genetic deletion of EP2 by CRISPR/Cas9 blocks the development of neuroblastoma. Pharmacological inhibition of EP2 by our recently developed small-molecule antagonists suppresses the progression of neuroblastoma, accompanied by broad anti-inflammatory, antiangiogenic, and apoptotic effects. Our proof-of-concept study suggests that the PGE2 signalling via EP2 receptor contributes to neuroblastoma malignancy and that EP2 inhibition by our drug-like compounds represents a feasible strategy to treat this deadly pediatric cancer.

Recent Publication

1. Sluter MN, Bhuniya R, Yuan X, Ramaraju A, Chen Y, Yu Y, Parmar KR, Temrikar ZH, Srivastava A, Meibohm B, Jiang J, Yang C-Y (2023) A Novel, Brain-Permeable, Cross-Species Benzothiazole Inhibitor of Microsomal Prostaglandin E Synthase-1 (mPGES-1) Dampens Neuroinflammation In Vitro and In Vivo. ACS Pharmacology & Translational Science (In Press)
2. Hou R, Yu Y, and Jiang J (2022) Prostaglandin E2 in neuroblastoma: Targeting synthesis or signaling? Biomedicine & Pharmacotherapy 156:113966.
3. Hou R, Yu Y, Sluter MN, Li L, Hao J, Fang J, Yang J, and Jiang J (2022) Targeting EP2 receptor with multifaceted mechanisms for high-risk neuroblastoma. Cell Reports 39:111000.

Biography

Jianxiong Jiang completed his Ph.D. in 2008 from Auburn University, USA. He is currently a tenured Associate Professor at the University of Tennessee Health Science Center, Memphis, Tennessee, USA. He has over 60 peer-reviewed publications that have been cited nearly 3000 times, and his current publication H-index is 27. He has been serving as an editorial board member of several reputed Journals, such as British Journal of Pharmacology, Inflammation Research, Neurochemical Research, and Experimental Biology and Medicine.

jjiang18@uthsc.edu

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Metabolic reprogramming of alveolar macrophages plays an important role in acute lung injury

Bo Liu
Children's Hospital of Chongqing Medical University & Chongqing Medical University, China

Background: Acute lung injury (ALI) is a life-threatening inflammatory disease without effective therapeutic options. Macrophage polarization plays a critical role in the initiation and development of pulmonary inflammation, but the specific mechanisms underlying the phenotype transition remain unclear.

Materials and methods: A mouse model of ALI was established by intratracheal instillation of LPS to study the polarization of alveolar macrophage phenotype during ALI. Mouse alveolar macrophages MH-S were stimulated with LPS in vitro to further investigate the mechanism of alveolar macrophage polarization and metabolic reprogramming changes ALI.

Results: ALI mice exhibited a significant decrease in food-intake and activity, significant lung tissue edema, and increased pulmonary inflammatory cell infiltration. In vitro and in vivo results indicated that LPS stimulated the polarization of alveolar macrophages towards the M1 phenotype, leading to increased secretion of inflammatory factors. Further mechanism studies showed that LPS stimulation increased glycolysis levels in alveolar macrophages. Inhibition of glycolysis could induce the transformation of alveolar macrophages from the M1 to M2 phenotype and alleviate LPS-induced ALI.

Conclusion: These findings suggest that inducing the transition of alveolar macrophages from the M1 to M2 phenotype through regulating macrophage metabolic reprogramming might be a potential therapeutic strategy for ALI. Inhibiting glycolysis in alveolar macrophages could be a potential treatment for ALI.

Recent Publication

1. Liu, Bo et al. "Affinity-coupled CCL22 promotes positive selection in germinal centres." Nature vol. 592,7852 (2021): 133-137. doi:10.1038/s41586-021-03239-2
2. Qi, Hai et al. "The humoral response and antibodies against SARS-CoV-2 infection." Nature immunology vol. 23,7 (2022): 1008-1020. doi:10.1038/s41590-022-01248-5
3. Liu, Bo et al. "Author Correction: Affinity-coupled CCL22 promotes positive selection in germinal centres." Nature vol. 592,7852 (2021): E6. doi:10.1038/s41586-021-03384-8

Biography

Liu Bo is a cardiothoracic surgeon who has been working at the Children's Hospital of Children's Hospital of Chongqing Medical University & Chongqing Medical University for 7 years. His primary responsibilities include providing diagnosis and treatment for thoracic and cardiovascular-related diseases, training and educating medical students, and conducting research on the mechanisms and prevention of acute lung injury. Over the course of his career, Liu Bo has published numerous research articles in reputable medical journals and has been invited to speak at various international conferences. He is highly respected among his peers and patients alike for his dedication to providing high-quality medical care and his commitment to advancing medical knowledge through research and education.

lbcqmu@126.com

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The immunoregulation effect of dendritic cells GITRL on asthma with early life lipopolysaccharide pre-exposure

Fengxia Ding
Children's Hospital of Chongqing Medical University & Chongqing Medical University , China

Background: Asthma is one of the most common chronic respiratory diseases in children. Lipopolysaccharide(LPS) is found in the cell wall of Gram-negative bacteria and is a ubiquitous component in our environment. Studies showed that LPS enhanced antigen-specific allergic responses, while other studies showed that LPS exposure protected from asthma. Our previous study found that the discrepancies may be due to the different LPS exposure concentrations and stages, and low-dose LPS inhalation in neonatal mice induces endotoxin tolerance, thereby offering protection from later asthma development by increasing Treg cells while decreasing Th2 and Th17 cells. It's reported that the ligand of glucocorticoid-induced tumour necrosis factor receptor (GITRL) plays an important role in immunoregulation by inhibiting Treg cells while inducing CD4+T cells. However, its role in modulating allergic asthma is unknown.

Methods: Three-day-old wild-type and Toll-like receptor 4 (TLR4)-deficient neonatal mice were exposed to low-dose LPS (1ug) intranasally for 10 consecutive days prior to ovalbumin (OVA)-induced asthma. Primary CD11c+DCs and CD4+T-cells with or without low-dose LPS pre-exposure before OVA stimulation were co-cultured in vitro. The T cells skewing and DCs GITRL were measured. Meanwhile, asthma phenotype is measured after artificial GITRL over-expression, to confirm the effect of GITRL in asthma mice with low-dose LPS pre-exposure.

Results: Low-dose LPS pre-exposure upregulated the Treg response and downregulated pathogenic Th2 and Th17 responses through promoting apoptosis of Th2 and Th17 cells. Low-dose LPS pre-exposure downregulated dendritic cells (DCs) GITRL expression and T-cell GITR expression. Artificial DCs GITRL expression abrogated

the tolerogenic Treg-skewing effect of low-dose LPS pre-exposure. Low-dose LPS pre- exposure inhibited TRIF/IRF3/IFNβ signaling in a TLR4- dependent manner and this tolerogenic DCs GITRL downregulation was attributable to TRIF/IRF3/IFNβ signaling inhibition.

Conclusions: Low-dose LPS pre-exposure produces tolerogenic Treg skewing in neonatal asthmatic mice, a phenomenon attributable to TLR4-dependent TRIF/IRF3/IFNβ-mediated DCs GITRL downregulation.

Recent Publication

1. Liu, Bo et al. "Human umbilical cord mesenchymal stem cell conditioned medium attenuates renal fibrosis by reducing inflammation and epithelial-to-mesenchymal transition via the TLR4/NF-κB signalling pathway in vivo and in vitro." Stem cell research & therapy vol. 9,1 7. 12 Jan. 2018, doi:10.1186/s13287-017-0760-6

2. Liu, Bo et al. "Human umbilical cord-derived mesenchymal stem cells conditioned medium attenuate interstitial fibrosis and stimulate the repair of tubular epithelial cells in an irreversible model of unilateral ureteral obstruction." Nephrology (Carlton, Vic.) vol. 23,8 (2018): 728-736. doi:10.1111/nep.13099

3. Liu, Bo et al. "Risk of venous and arterial thromboembolic events associated with VEGFR-TKIs: a meta-analysis." Cancer Chemotherapy and Pharmacology vol. 80,3 (2017): 487-495. doi:10.1007/s00280-017-3386-6

Biography

Fengxia Ding is a respiratory medicine physician and pediatrician from Children's Hospital of Children's Hospital of Chongqing Medical University & Chongqing Medical University, one of the top three children's hospital in China. Now she is working as a post doctor in Great Ormond Street Institute of Child Health, University College London (UCL). She has been working as a pediatrician for 7 years in Children's Hospital of Children's Hospital of Chongqing Medical University & Chongqing Medical University, and there are more than 19,000 outpatient pediatric patients visit she every year. She got a patent in respiratory diseases, and she has over 30 publications focusing on respiratory disease and asthma. She has presented her clinical and research work at many conferences and got many grands on her researchers.

dingfengxia@hospital.cqmu.edu.cn

Pediatric Immunology | Pediatric Nutrition | Clinical Pediatrics

Session Chair: Steven M. Donn
University of Michigan | USA

Session Introduction

Title: Title: Play safe, play smart: understanding and managing pediatric sports injuries
Pratik Sunil Tawri | Bombay Hospital Institute of Medical Sciences | India

Title: Title: The effect of sms reminder on improving routine childhood immunization coverage and timeliness: a case of gurage zone, snnpr, ethiopia, 2021: a randomized controlled trial study
Fisha Alebel GebreEyesus | Wolkite University | Ethiopia

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Play safe, play smart: understanding and managing pediatric sports injuries

Pratik Sunil Tawri
Bombay Hospital Institute of Medical Sciences, India

Pediatric sports injuries have become a significant concern in recent years due to the increasing participation of children and adolescents in organized sports activities. These injuries can have long-term consequences on the physical and psychological well-being of young athletes. Effective management strategies for pediatric sports injuries involve a multidisciplinary approach. Immediate first aid, accurate diagnosis, and appropriate medical intervention are crucial for minimizing the extent of the injury and promoting recovery. Prevention is key in mitigating the occurrence of pediatric sports injuries. Early identification of risk factors and monitoring of the growth and development of young athletes can aid in preventing and managing potential injuries. Psychological support and counselling are also essential for addressing the emotional and mental well-being of young athletes during the recovery process. In conclusion, pediatric sports injuries pose a significant challenge in the realm of youth sports. Through a comprehensive approach encompassing prevention, early identification, proper management, and psychological support, the impact of these injuries on young athletes can be minimized, allowing them to pursue their sporting endeavours safely and with optimal health outcomes.

Biography

Pratik Sunil Tawri is an accomplished orthopaedic surgeon with a special interest in pediatric and sports orthopaedics. He completed his M.S. in Orthopaedics from the prestigious Bombay Hospital Institute in Mumbai, India. He is expertise and commitment to advancing the field of orthopaedics are reflected in his extensive involvement in research and academia. He has been invited to present his clinical work at numerous national and international conferences and meetings. His exceptional clinical case presentation at the Arthroplasty meet in AIIMS, New Delhi earned him the esteemed title of the best clinical case. Additionally, his outstanding paper presentation at the WIROC GLOBAL Orthopaedic conference earned him the coveted Best Paper Presentation award.

Recognizing his academic excellence, Dr. Tawri was awarded the prestigious ICMR studentship for two consecutive years. He has also showcased his talent in sports, demonstrating his exceptional skills both on and off the field.

tawripratik@gmail.com

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The effect of sms reminder on improving routine childhood immunization coverage and timeliness: a case of gurage zone, snnpr, ethiopia, 2021, a randomized controlled trial study

Fisha Alebel GebreEyesus
Wolkite University, Ethiopia

Introduction: The vaccination coverage in Ethiopia is still below the required level, contributing to measles outbreaks and deaths from vaccine-preventable illnesses. So, this necessitates developing a new and cost-effective strategy which effectively utilized to achieve better compliance with children's immunization schedules which ultimately enhances vaccination uptake and coverage. So this study aimed to assess the effect of SMS reminders on improving routine childhood immunization coverage and timeliness: in the Gurage zone, SNNPR, South-West, Ethiopia

Methods: A two-arm, parallel, randomized controlled trial study was employed among 408 mother-infant pairs. Using sealed and opaque envelopes, mother– infant pairs in selected health institutions were allocated to either the intervention group (receiving short message service reminders and health education) comprising 204 mother–infant pairs or the control group (receiving the routine health education only) comprising 204 mother–infant pairs. The units of randomization were mother–infant pairs randomized into one of the two study arms with a 1:1 ratio. Data were cleaned, coded and entered into EpiData version 4.1 and was exported to STATA statistical software for analysis. Initially, descriptive statistics was computed. A two-sample test of proportion and log-binomial regression analyses was used to compare the outcomes between the study groups. The statistical significance of variables was declared if p-value ≤0.05

Result: A total of 400 study participants were recruited, 200 for the intervention group and 200 for control group. We have found that a higher proportion of infants in the intervention group received penta1 199 (99.5 %) vs penta 2, 192(96%) vs. 157 (78.5%) and penta 3, 172(86%) vs 133 (66.5%) compared with control group. At 14 weeks, 172 (86%) and 133 (66.5 %) risk ratio (RR) 1.29, 95% CI (1.15-1.45; p<0.001) in the intervention and control groups received penta 3 vaccines. Besides this 159(79.5%) and 123(61.5%) RR 1.29, 95% CI (1.13, 1.47; p<0.001) in the intervention and usual care group received penta 3 vaccines timely.

Conclusion: Our study showed that use of an SMS reminder system can improve immunization coverage, and timeliness and strengthen the quality and effectiveness of an immunization program.

Recent Publication

1. Berihun, Bihon et al. "Vitamin A supplementation coverage and its associated factors among children aged 6-59 months in West Azernet Berbere Woreda, South West Ethiopia." BMC pediatrics vol. 23,1 257. 23 May. 2023, doi:10.1186/s12887-023-04059-1
2. GebreEyesus, Fisha Alebel et al. "Sleep quality and associated factors among adult people living with HIV on follow-up at Dessie Town Governmental Health Facilities Antiretroviral Therapy Clinics, Northeast, Ethiopia, 2020, a multicenter cross-sectional study." BMC psychiatry vol. 23,1 132. 2 Mar. 2023, doi:10.1186/s12888-023-04619-w
3. GebreEyesus, Fisha Alebel et al. "Health care providers' preparedness and health care protection against the third wave of COVID-19 pandemics in a resource-limited setting in Southwest Ethiopia: a multi-center cross-sectional study." The Pan African medical journal vol. 44 53. 26 Jan. 2023, doi:10.11604/pamj.2023.44.53.31428

Biography

Fisha Alebel Gebre Eyesus is a passionate healthcare professional working in the Department of Paediatrics and Child Health Nursing at Wolkite University's College of Medicine and Health Science in Ethiopia. With a focus on improving child health, Fisha plays a vital role in teaching, research, and community outreach programs. Through dedicated efforts, Fisha strives to enhance healthcare delivery, promote health education, and implement preventive measures for children. Fisha's commitment, expertise, and compassion make a significant impact on paediatric healthcare in Wolkite and contribute to the overall well-being of children in Ethiopia.

fishalebel@gmail.com

Video Presentation

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Can zinc supplementation in addition to standard of care reduce mortality and improve neurodevelopmental outcomes in neonatal sepsis?

Vishnu Bhat
Mission's research foundation-DU, India

Background: Zinc supplementation has been found to be beneficial in reducing the severity of diarrhea and respiratory infection among children. We wanted to find out whether Zinc supplementation in addition to the standard of care among neonates with sepsis will reduce mortality and improve later neurodevelopmental outcomes.

Methods: We randomized neonates with sepsis into two treatment groups. The study group received 3 mg/Kg twice a day of Zinc sulfate orally in addition to standard supportive care and antibiotics. The control group did not receive Zinc but only antibiotics with supportive care. We assessed the serum levels of Zinc and inflammatory mediators at recruitment and 10 days later. Mortality and neurodevelopmental outcome were compared at discharge and one year of age.

Results: Zinc levels were significantly higher and inflammatory mediators were significantly altered in the Zinc group after 10 days of treatment. The mortality in the Zinc group was 5.5% compared to 13.8% in the control arm (p 0.04). The mean survival time was significantly higher (34 days vs 22 days) in the Zinc group. Neurological assessment at 28 days using Hammersmith scale showed abnormal neurological status significantly lower in the Zinc group (4 vs 14 and p<0.02).Infants on follow up assessed using DASII (Developmental assessment scale for Indian infants) scale showed better neurodevelopmental outcome among the infants in the Zinc group. The difference was significant in the motor development (89.4 Vs 84.9 and p<0.05).

Conclusion: Supplementation of Zinc 3 mg/Kg twice a day along with antibiotics reduces mortality and improves neurodevelopmental outcome among infants with neonatal sepsis.

Recent Publication

1. Bethou, Adhisivam, and Ballambattu Vishnu Bhat. "Neonatal Sepsis-Newer Insights." Indian journal of pediatrics vol. 89,3 (2022): 267-273. doi:10.1007/s12098-021-03852-z
2. Bhat, B Vishnu, and B Adhisivam. "Hand Washing Practices in Neonatal Intensive Care Units." Indian pediatrics vol. 52,5 (2015): 382-3.
3. Bhat, B Vishnu, and Sambandam Ravikumar. "Challenges in Neonatal COVID-19 Infection." Indian journal of pediatrics vol. 87,8 (2020): 577-578. doi:10.1007/s12098-020-03379-9

Biography

Vishnu Bhat is an accomplished physician specializing in Pediatrics and Neonatology at Aarupadaiveedu Medical College & Hospital, Vinayaka Mission's Research Foundation-DU, in Puducherry, India. With a profound commitment to child healthcare, Dr. Bhat has established himself as a trusted expert in his field. His vast knowledge and experience enable him to provide comprehensive medical care to infants and children. Driven by a deep sense of compassion, he strives to ensure the well-being of his young patients. Dr. Bhat's contributions to the field of Pediatrics and Neonatology have been widely recognized, making him an invaluable asset to the medical community and a source of hope for countless families.

drvishnubhat@yahoo.com