



Contents lists available at ScienceDirect

Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jped surg.org

Editorial

Report of 54th Annual Meeting of the Pacific Association of Pediatric Surgeons



In 2021, the Pacific Association of Pediatric Surgery (PAPS) met virtually for the second time, one and a half years into the COVID-19 pandemic at its 54th annual meeting. Waves of new COVID variants made travel next to impossible and nearly resulted in the cancellation of the annual conference. PAPS members across the globe experienced upheaval in their clinical work and research. The decision to proceed with a virtual conference was made with trepidation. Despite the uncertainties and a short timeline, the virtual program was a success. John Meehan chaired a dynamic program. Distances between colleagues were bridged, and 157 presentations from across the globe were presented to an audience of 273. The Coe Medal, recognizing an individual who has made substantial contributions to pediatric surgery, was awarded to the new PAPS president, Professor Hong-Shiee Lai from the National Taiwan University Hospital.

The keynote speakers this year were an excellent reflection of the PAPS community. The curiosity and enthusiasm of PAPS members (as well as our love of singing) was apparent in John Meehan's interview of Phillipa Soo, a star Broadway performer in "Hamilton". Dunya Moghul's harrowing description of her flight from Afghanistan was a reminder of the strength, resilience, and steadfast support within the PAPS community and is published as a narrative in this edition of JPS. PAPS membership is truly global, and global crises such as war, disease, and societal disparities impact our patients and our surgical community and continue to be reflected in the presentations and experiences of the PAPS members and the Global Alliance Partnership (GAP) fellows.

There were four trainee research awards presented this year at PAPS. The presentations and publications of these trainees highlight the richness of the PAPS research community and the strength of up-and-coming researchers. In this year's report, we reflect on the four manuscripts produced by the award-winning trainees and published in the PAPS JPS issue.

Hageman and colleagues from Royal Children's Hospital (RCH), Melbourne, Australia, perform a broad examination of the use of opioids in pediatric inguinal hernia operations through a systematic review and complementary exploration of the opioid prescribing practices at their own site [1]. Hernia surgery remains one of the most common procedures in children, and the findings of this study are highly relevant to our daily practice. The harms of opioids in children are numerous. Despite efforts to reduce their use, opioids are frequently prescribed for peri operative pain control even for relatively minor operations. In this study, the authors performed a comprehensive systematic review of opioid use in inguinal hernia surgery. This paper reviews 15 articles, including 12 high quality randomized controlled trials and a total of 1166 pa-

tients. The authors report a huge variation in opioid prescribing practices. Fentanyl was the most common opioid used intra operatively but was not commonly prescribed at discharge. In addition to the systematic review, the authors performed a retrospective review of 150 patients who underwent open inguinal hernia repair at RCH, a larger and more contemporary study than the articles in the systematic review. Similar to the findings from the review, there was significant variability in opioid administration between cases at RCH. Significantly fewer patients (20%) were treated with peri operative opioids at RCH than was observed in the systematic review. Factors influencing opioid administration included patient age and gender. The use of regional analgesia was associated with a lower rate of opioid use. We agree with the authors that this paper supports a call for a more robust strategy to guide the judicious use of opioids. Hageman and colleagues shine a light on the inconsistency and inadequacy of our current opioid prescribing practices and suggest opportunities to decrease opioid use through greater awareness, standardized pain assessment, and the use of regional blocks.

A second study in this issue that focuses on post operative pain relief was performed by Rettig and colleagues from Los Angeles Medical Center in the United States [2]. This study describes the use of intercoastal nerve cryoablation accompanying a modified Ravitch procedure for chest wall deformity. Chest wall reconstruction is associated with significant pain. Thoracic epidurals have long been used for chest wall surgery analgesia. Intercoastal nerve cryoablation is a relatively new approach that has been demonstrated to be highly effective for the Nuss procedure in recent years. However, the role of this approach in the Ravitch procedure has not been described. It should not be assumed that the benefits of the intercoastal nerve cryoablation would necessarily translate from the Nuss procedure to the Ravitch. The Nuss procedure is performed thoroscopically and involves the placement of a shaped metal bar to reshape the chest wall without physically dividing the ribs or cartilage. The Ravitch is performed through an open incision and requires the division of muscle, breaking and removing multiple costal cartilages, and often dividing the sternum. Understanding whether adding a thoroscopic approach with the additional time of intercoastal nerve cryoablation can improve the pain outcomes of patients undergoing a Ravitch procedure and could help surgeons and their patients. In this small study, patients undergoing a modified Ravitch repair with intercostal nerve cryoablation were compared with historical patients who received thoracic epidural. Several advantages in terms of decreased hospital stay and cost were found to be associated with the use of intercoastal nerve cryoablation. Although this approach is associ-

ated with an increased operative time, this drawback was overshadowed by other merits including the reduction of opioid usage. Long term negative effects were not apparent. Larger and longer term studies will be needed to give a definitive answer as to the long term impact of this approach. To reduce the pain and associated opioid use that frequently accompanies chest wall reconstruction, it is critical for surgeons to explore new methods of pain control. The expanded use of intercostal nerve cryoablation beyond the Nuss procedure offers the opportunity to provide superior pain management for these complex patients.

An additional PAPS prize winning presentation by Sophie Carr on behalf of her authorship team at British Columbia Children's Hospital in Vancouver, Canada, further examines how our care pathways can improve the outcomes of our patients [3]. In this study, Chlorhexidine skin preparation is explored as part of a strategy to reduce surgical site infections in neonates. This paper examines a focus of neonatal surgical care that has been plagued by low quality and sparse evidence. Despite the fact that Chlorhexidine has been found to significantly diminish skin bacterial counts and reduce infections in older patients, the potential risks of skin injuries and significant burns has led to a cautious approach to its use in neonates. Surgical site infections in neonates are common, and the sequelae of these infections are significant. The Enhanced Recovery after Surgery Society neonatal surgery guideline did not include recommendations related to skin preparation owing to the uncertainty of the data. The authors of this current study performed both a focused evidence review and a prospective analysis of 50 consecutive neonates (greater than 24 weeks ant 1500 g) treated with 70% chlorhexidine prep compared to a historic cohort. The authors demonstrated a 8% rate of SSIs in the cohort treated with Chlorhexadine skin preparation compared to 14% in the historical cohort (although not statistically significant) and demonstrated an absence of skin reaction in these neonates. The authors did not set out to examine the impact of Chlorhexidine on the rate of surgical site infection, although the results are promising, nor did they examine the safety of Chlorhexidine prep in premature or small for gestation infants. Carr's study targeted a demonstrated knowledge gap in order to offer new evidence supporting the safety of Chlorhexidine skin preparation in neonates greater than 34 weeks gestation and greater than 1500 g. The authors acknowledge that there is more work to be done. There are opportunities for further prospective studies with larger number of patients to compare the effectiveness of different skin preparations. In this study, the authors have uncovered data with meaningful impact that can be integrated into care pathways including enhanced recovery protocols for term and near term neonates.

Basic science research is increasingly challenging to sustain for pediatric surgeons. And yet, these investigations represent some of the most foundational work done within our research community. PAPS awardee Wang and colleagues from Children's Hospital of Fudan University in China presented their work at PAPS, published in this issue, on the effects of Rapamycin on Kaposiform Hemangioendothelial (KHE) cells *in vitro* [4]. To best understand the mechanism by which Rapamycin could be used to treat Kaposiform Hemangiomas, the authors explored the impact of this therapy at the cellular level. This approach required the development of KHE cells lines and an *in vitro* analysis of the impact of Rapamycin on cell proliferation and apoptosis. The authors build a clear story that describes the impact of Rapamycin on KHE cells. The viability of Rapamycin-exposed KHE cells was determined using immunofluorescence with the addition of flow cytometry to explore cell cycle and apoptosis. The authors identified both decreased proliferation and increased apoptosis of exposed cells. To understand the mechanism of apoptosis, the team used Western blot to identify the phosphorylation of mammalian target of rapamycin. This work presents an elegant description of the impact of Rapamycin at the cellular level on KHE and supports the potential of a novel therapeutic pathway for treatment of Kaposiform Hemangiomas.

The trainees presenting at the 54th annual PAPS meeting continue to reflect the excellence of PAPS. PAPS 2021 was distinguished by compelling stories and groundbreaking research. The upcoming PAPS conference is planned to occur in person in Quito, Ecuador, and promises to further showcase the curiosity, warmth, and research excellence of the PAPS community.

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<https://doi.org/10.1016/j.jpedsurg.2022.03.005>