Clinical Spotlight: Dr. Charles Luke & AIPPS

UNDER THE DIRECTION OF CHARLES B. LUKE, MD, MBA, FASAM, OUR REGIONAL ANESTHESIOLOGY AND ACUTE INTERVENTIONAL PERIOPERATIVE PAIN SERVICE (AIPPS) DELIVERS 24-HOUR HIGH-QUALITY PERIOPERATIVE PAIN MANAGEMENT FOR UPMC'S SURGICAL/TRAUMA PATIENTS USING A MULTIDISCIPLINARY APPROACH.

AIPPS treats an ever-growing number of cases - over 36,000 in FY20 – and is widely considered one of the largest acute pain services in the country. Due to our physicians' anatomical knowledge of the body and their extensive experience in ultrasound-guided nerve blocks, they can master new techniques quickly. This agility and adjustment to new techniques positions our AIPPS physicians on the cutting edge of acute pain management and uniquely equips them to safely perform nerve blocks and procedures that might be considered difficult or exotic by others who have only seen them in textbooks or articles.

Currently, AIPPS treats patients at five hospital sites: UPMC Mercy, Passavant, Presbyterian, and Shadyside hospitals, and most recently, UPMC Magee-Womens Hospital. There is also an Acute Pediatric Interventional Pain Service at UPMC Children's Hospital of Pittsburgh, directed by Mihaela Visoiu, MD, that treats pediatric patients (0 days - 26 years old) undergoing various surgical procedures and requiring postoperative pain control management. Dr. Luke says he's always considering expanding to new sites and has set a goal to open a new AIPPS site every three years. "We plan to open another site depending on the healthcare climate (hopefully post-COVID-19) in late 2022," he says. In the meantime, AIPPS continues to expand into orthopedic trauma, transplant, ambulatory surgery, and addiction medicine.

Always striving to increase patient safety and satisfaction and quality of care, AIPPS is expanding the use of multimodal and regional anesthesia. "We believe it is our mission to find and implement ways to improve acute pain care using an evidence-based system approach with regional anesthesia as our cornerstone," explains Dr. Luke. Through these initiatives, AIPPS has been able to decrease length of stay, perioperative opioid use, and complications related to opioid use. At all of its hospital sites, AIPPS is limiting the perioperative use of opioids through strategies such as utilizing enhanced recovery protocols and alternative pain management techniques like hypnosis and

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ACUTE INTERVENTIONAL PEDIATRIC PAIN SERVICE

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auricular therapy. Also, they are limiting, and sometimes eliminating completely, the use of patient-controlled analgesia (PCA). For instance, at UPMC Mercy, they reduced opiate PCAs from 1,300 in 2017 to 900 in 2019. (See page 20, "AIPPS Perioperative Opioid-limiting Strategies by Site")

The service has proposed an AIPPS Registry, spearheaded by Dr. Charles Lin, that will collect patient-reported outcomes; included in the data will be reports on patient satisfaction, return to activities of daily living, postoperative opiate use, and peripheral nerve block (PNB) complications. The registry will serve as a platform for future acute pain outcome research studies. It will also include collaborative efforts with our Center for Perioperative Care/Enhanced Recovery Program (ERP) on Bayesian adaptive clinical trials, as well as future studies that will assess the value of using telemedicine versus phone call to evaluate post-block patients. Additionally, telemedicine will be made available in 2021 not only to reach out to our patients, but also to serve as a new platform for data collection.

AIPPS is training the next generation of acute pain specialists through our UPMC Regional Anesthesiology and Acute Pain Medicine Fellowship Program. The program is one of the largest accredited fellowships at UPMC and the largest accredited regional anesthesiology/acute pain fellowship in the nation. Jacques E. Chelly, MD, PhD, MBA founded the program in 2003 and developed it into one of the largest and most prestigious in the country. The program was initially accredited by the Accreditation Council for Graduate Medical Education (ACGME) in 2017 and was just recently awarded continued accreditation with no citations. This status is given to programs that are in substantial compliance with the ACGME's program and/or institutional requirements. This year in July, Dr. Chelly stepped down from the role of Program Director and "passed the torch" to Nicholas J. Schott, MD. The fellowship program offers 15 positions per year and consists of 12 months of subspecialty training for qualified physicians who have completed an ACGME-accredited anesthesiology residency. "The majority of our faculty are 100% clinical and still manage to receive high teaching scores," elaborates AIPPS director Dr. Charles Luke. "We teach fellows and residents daily and maintain high academic and clinical standards. With this combination of clinical volume and academic inspiration, we have a unique mix of the best of both worlds that produces an exceptional pain team."

AIPPS Perioperative Opioid-Limiting Strategies by Site

UPMC Shadyside/Passavant

- Use of PNBs, extending their duration with catheters when appropriate and with systemic lidocaine infusions when a catheter is not used
- No routine use of fentanyl or any other opioid as a sedative/analgesic during preoperative block performance
- Encourage surgeons to limit opioid prescribing upon their resumption of pain management for patients that AIPPS returns to their care. This includes the cessation of routine ordering of extended release opioids that had been ordered as part of a preoperative multimodal regimen
- Discourage the surgical team from postoperative prescribing of combination acetaminophen/opioid medications for patients upon discharge so that patients can continue scheduled acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs) when appropriate while using opioids as the medication of last resort
- No routine use of PCA opioids and use of a nurse-administered bolus regimen to begin with for most patients. Patients must exceed scheduled opioid bolus dosing before PCA is considered.
- Attentiveness to scheduled multimodal non-opioid treatment regimens that includes, when appropriate, systemic lidocaine infusions, scheduled acetaminophen and NSAIDs, and low-dose ketamine infusions and topical cooling (ice)
- Trialing alternative techniques for pain management, including hypnosis and auricular therapy (Shadyside)

UPMC Mercy/Presbyterian

Collaboration with several service lines:

- Gynecology same day hysterectomy ERP protocol utilizing transversus abdominis plane (TAP) / quadratus lumborum (QL) / suprascapular (SS) blocks and intraoperative avoidance of opiates
- Urology robotic prostatectomy and nephrectomy protocol utilizing TAP/QL/SS blocks and intraoperative avoidance of opiates; postoperative use of opiates limited to oxycodone 2.5m/5 mg
- Low dose ketamine infusions employed at 2.5 mg/hr-5 mg/hr for 12-24 hrs. postoperatively
- Oncological urology ERP protocols with PNB catheters and minimization of perioperative opiate use
- General surgery: extensive use of PNB catheters and facial blocks and low dose ketamine infusions; avoidance of PCAs
- Trauma service: use of peripheral regional techniques and multimodal analgesics as a primary mode of pain control; no PCA use
- Burn service: multi-team approach to minimize opiate use; engage psychiatric, toxicology (i.e., addiction medicine), and social work services to understand underlying psychosocial problems that led to the injury while attempting to moderate and closely monitor opiate use; no PCA use
- Geriatric trauma: minimization of polypharmacy and opiate use by combining the use of peripheral regional analgesia and multimodal analgesia (MMA)
- Upper extremity orthopedic and plastics procedure: no intraoperative opiate use and combination of non-opiate-based postoperative pain control through outpatient PNB catheters and MMA (Mercy)
- Thoracic surgery service: PNB catheters and MMA while minimizing opiate use
- Mercy AIPPS director Dr. Vlad Shick working on system-wide Intravenous Methadone Power Plan to minimize hydromorphone use in acute trauma setting
- Management ERAS protocols including intrathecal morphine (ITM) administration (Presbyterian)

UPMC Magee-Womens Hospital

- Significant reduction in perioperative opioid use
- Management of ERP protocols
- Partnerships with ERP and surgical colleagues

Key AIPPS Publications

Lin CJ, Luke C, Sullivan D, Kidwell R. Development of specific peripheral nerve block consent form. J Clin Anesth. 2019 May;54:33-36. doi: 10.1016/j.jclinane.2018.10.030. Epub 2018 Nov 2. PMID: 30391447.

Shick V, Lebovitz EE, Conrad E. The benefits of ultrasound-guided continuous sensory nerve blockade in the setting of burn injury: a case report of bilateral continuous superficial peroneal nerve blockade in a patient with severe sleep apnea. J Clin Anesth. 2017 Feb;36:62-66. doi: 10.1016/j.jclinane.2016.10.002. Epub 2016 Nov 22. PMID: 28183576.

Merman R, Shick V, Bhasin V. Chapter 24: Transverse Abdominal Plane, Pectoral and Serratus Plane, and Quadratus Lumborum Blocks. In: Kaye A, Urman RD, Vadivelu, N, eds. Essentials of Regional Anesthesia. Springer, 2018: pages 463-470.