INTUBATION NATION

ANESTHESIA RESIDENCY PROGRAM NEWSLETTER

VOL. 5 | ISSUE 1 | JULY 2021

Editor in Chief Jessica Reyes, MD
Editor Nicholas Nedeff, MD

2020-2021
A Year in Review

By Jessica Reyes, MD CA-3

It feels as if this past year flew by, and though we are forever changed by the COVID pandemic we are now fortunate to be returning to normalcy, continuing with social distancing, but in an open State once again. Three blessings to come out of this pandemic are the three new members to our KRMC family. Dr. Parneet Parekh, Dr. Sharlene Lobo, and Dr. Catalina Carvajal gave birth consecutively and respectively in December, January, and February to three healthy baby boys. This makes a total of four new additions last year, including Dr. Scott MacDougall's daughter's birth in September.

FEATURED ARTICLES

ANNOUNCEMENTS: UPCOMING EVENTS

October 8–12
ANESTHESIOLOGY 2021 Annual ASA meeting
San Diego, California

Class of 2021

Class of 2021 continues to pave the way and set the bar high for future classes with Dr. Carvajal, Dr. Joohi Kahn, and Dr. Lobo continuing on to prestigious fellowships in Cardiothoracic Anesthesia at Duke, Pediatric Anesthesia at Long Island Jewish Medical Center and Regional Pain at Dartmouth respectively. Dr. Victor Iturbides, will stay on with us as an Attending Faculty, starting this August. We are fortunate to keep this former chief resident in house, as he will continue to be a mentor to future residents.

Class of 2024/2025

As we close out 2020-2021 we bid farewell to our Class of 2021, and welcome our new CA-1s, class of 2024. This incoming class of six has five males and one female, only to be balanced by the upcoming class of 2025 comprised of five females and one male. This class of 2025 will all start their PGY-1 intern year with us here at KRMC in the Transitional Year and Preliminary Surgery programs.

Farewells

Earlier this year we bid farewell to our beloved attending Dr. Juan Ampuero, we will cherish our memories with him and are fortunate for the time and training he shared with us. Though this is a huge loss for our program we wish him the best in his new position at Cleveland Clinic in Weston, FL, whose team and residents are gaining a great leader and role model.

We also bid farewell to Dr. Oded Tal, who though being with us for only one year, has been an excellent addition to our program, offering a fresh perspective, and always being a resident advocate. He will return to Mount Sinai in New York City, New York where he trained in residency.

Graduation 2021 Awards
Dr. Stalls was named KRMC Faculty of the year at our 2021 graduation, and gained two new titles this year, Chief Pediatric Anesthesiologist, and Assistant Program Director. Dr. Javier Kaplan was named Aventura Faculty of the year, as voted by residents. Dr. Matthew Maggio and Dr. Kalina Nedeff were voted CA-1 and CA-2 residents of the year.

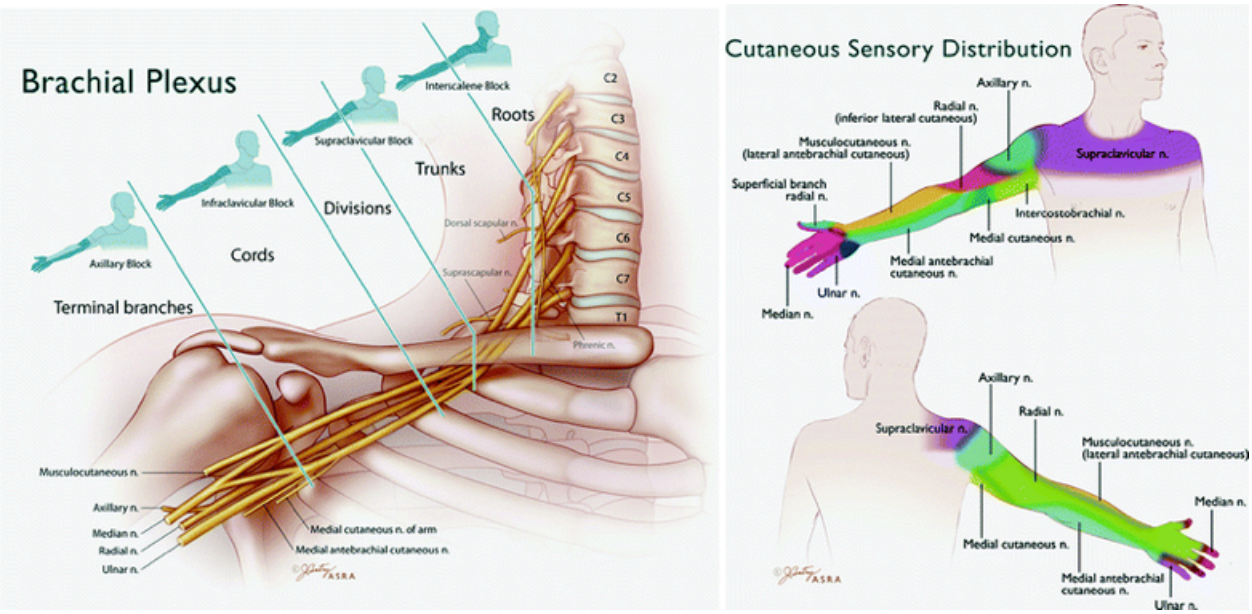
Bright Future
Despite travel restrictions our residents were able to present virtually at ASA, FSA, and ASRA conferences, with a poster by Dr. K. Nedeff selected as a top five finalist at FSA. We look forward to a productive year with greater participation in research and a return to in person conferences to present our work.

BRACHIAL PLEXUS BLOCKS:
Missed Nerves
By Harmandip Singh, MS4, Oleg Desyatnikov, MD CA-1

Regional anesthesia involves the use of local anesthetic agents in surgical procedures in order to reduce or completely block nerve transmission. By blocking nerve transmission, regional anesthetic blocks become useful for surgical procedures through a reduction in the sensation of pain without a significant effect on consciousness. The benefits that regional anesthesia confers compared to general anesthesia include fewer side effects, quicker recovery times, and nominal need for an airway management device.

Peripheral nerve blocks are a type of regional anesthesia that are generally used for upper and lower extremity surgical procedures. Brachial plexus nerve blocks are utilized in surgeries involving the upper limbs, such as shoulder or hand surgeries. The most common brachial plexus blocks include the interscalene, supraclavicular, infraclavicular, and axillary blocks (Figure 1).

Figure 1. Anatomy of the brachial plexus and sites for nerve blocks



Complications

While generally very safe, some potential complications of the different brachial plexus blocks include paralysis of the diaphragm, pneumothorax, or bleeding (see Table 1). Depending on the specific block used, brachial plexus blocks can also miss certain nerve distributions. Missing these nerve distributions can result in inadequate anesthesia in the region innervated by that distribution.

Table 1. Common brachial plexus blocks: surgical area and specific complications

Brachial Plexus Blocks	Location of Surgery	Complications
Interscalene	Shoulder, upper arm	Phrenic nerve block (paralysis of the diaphragm), recurrent laryngeal nerve block, intraarterial injection, intrathecal injection, Horner's syndrome, C8-T1 sparing
Supraclavicular	Arm, forearm	Pneumothorax, phrenic nerve block, bleeding
Infraclavicular	Arm, forearm, hand	Pneumothorax, bleeding, discomfort with placement
Axillary	Forearm, hand	Hematoma, musculocutaneous nerve sparing

Missed Nerve Distributions:

Interscalene Block
The inferior trunk (C8-T1) is often inadequately blocked and may require additional supplementation in the ulnar distribution. Traditionally has not reliably blocked the hand.

Supraclavicular Block
The supraclavicular nerve block occurs at the level of the nerve trunks or divisions. However, the inferior trunk (C8-T1/ulnar nerve component) can be missed about 30% of the time.
The brachial plexus is most compact at the level of the trunks, therefore this block gives the greatest likelihood of blocking all the branches of the brachial plexus.

Infraclavicular Block
The infraclavicular block works best for analgesia below the elbow. It can provide good analgesia for tourniquet pain, but is not suited for the shoulder area. It will not anesthetize the axilla or the proximal medial arm, missing the intercostal and medial cutaneous brachii nerves.

Axillary Block
The axillary technique reliably blocks the ulnar, median, and radial nerves, but not the musculocutaneous and the intercostobrachial nerves, which leave the brachial plexus at the level of the coracoid process.

References
Folino TB, Mahboobi SK. Regional Anesthetic Blocks. [Updated 2021 Jan 29]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK563238/.
John RS, Mckean G, Sarkar RA. Upper Limb Block Anesthesia. [Updated 2021 Jan 19]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK531460/.
Anesthesia Key. https://aneskey.com/brachial-plexus-block/.

ASA MONITORING STANDARDS

By Ahmed Awad, MD CA-1

The ASA Monitoring Standards are a set of standards developed by the ASA to promote quality patient care in all types of anesthesia (general, MAC, regional, etc.), addressing the issue of basic anesthetic monitoring.

Standard 1: A qualified anesthesia provider must be present in the room throughout any case involving any type of anesthesia (general, MAC, regional, etc.). This ensures that a trained individual who is able to handle unpredictable and sometimes unexpected changes in patient status is present at all times.

Standard 2: The patient's oxygenation, ventilation, circulation and temperature shall be continually evaluated during all anesthetics. To ensure adequate oxygen concentration in the inspired gas and the blood during all anesthetics, oxygenation must be monitored by inhaled measures (machine with oxygen analyzer with low oxygen concentration limit alarm) and by pulse oximetry (variable pitch pulse tone and low threshold alarm).

Standard 3: Adequate ventilation must be ensured with any type of anesthesia. Under general anesthesia, end-tidal CO2 must be monitored, with quantitative measurements preferred over qualitative measurement. Correct positioning of ET tubes and LMAs must be verified by end-tidal CO2. Observation of chest excursion, observation of the reservoir breathing bag, and auscultation of breath sounds are also important. End-tidal CO2 is to be continually monitored with capnography, capnometry, or mass spectroscopy from the time of ET tube or LMA placement until extubation/removal, with audible end tidal CO2 alarms. When ventilation is used, the ventilation system must be able to detect disconnection of the circuit with an audible alarm.

Standard 4: Circulation must be monitored throughout all anesthetics with 1) continuous EKG, 2) blood pressure cycled at least every 5 minutes, and 3) at least one of the following: palpation of a pulse, auscultation of heart sounds, monitoring of a tracing of intra-arterial pressure, ultrasound peripheral pulse monitoring, or pulse plethysmography or oximetry.

Standard 5: Temperature is to be monitored when clinically significant changes in body temperature are anticipated or suspected. This is the only standard that is not required for all cases, only when indicated.

Reference:

"Standards for Basic Anesthetic Monitoring." Standards for Basic Anesthetic Monitoring | American Society of Anesthesiologists (ASA), www.asahq.org/standards-and-guidelines/standards-for-basic-anesthetic-monitoring.