

# EDUCATION - CLINICAL - OUR FUTURE



# SRNA Sedation Sequels



SPRING OF 2017,  
ISSUE 5

## WELCOME DR. JORGE VALDES!

A grueling 2.4-mile swim in the turbulent ocean, a windy 112-mile bike ride, and a 26.2-mile run in the thick heat are the intense components that make up the full Ironman triathlon race in Florida. Many endurance athletes dream of completing this race, and Dr. Jorge Valdes counts it as one of his proudest achievements.

Born and raised in Miami, Dr. Valdes attended the University of Miami for his Bachelors Degree in Nursing. After starting the Family Nurse Practitioner program at FIU, Dr. Valdes decided to shadow a friend who happened to be a CRNA in the clinical setting. This proved to be a positive experience and pivotal choice: the following day, Dr. Valdes withdrew from the FNP program and began applying to CRNA schools. He graduated from Mayo Clinic, MN with his Masters in Nurse Anesthesia in 2002

and then returned to Miami and worked at Baptist Hospital where he was the Chief CRNA for 9 years.



Dr. Valdes developed an interest in academia and returned to the University of Miami (UM) in 2010. While at UM, he obtained his Doctorate of Nurse Anesthesia degree and then went on to serve as the President of Florida Association of Nurse Anesthetist (FANNA) from 2013 to 2015. Dr. Valdes continued his career in academia at Barry University prior to receiving the opportunity to teach at FIU. Highlights of his career include obtaining his Doctorate degree and working as the program director at UM.

Dr. Valdes started at FIU as a Clinical Assistant Professor this past January, 2017. He is extremely enthusiastic and has always loved teaching. His career plans include moving up the ranks in academia, becoming a Clinical Associate Professor, and eventually, a Clinical Professor.

Dr. Valdes believes that physical exercise is key to being successful in CRNA school. His advice to students: "You're not racing a race. You're in an ultra-marathon. You have to pace yourself a lot. Remember that you have support. In the long haul, you will get there. Students lose sight of how far they've come. Realize that you're doing good. Stand in front of the mirror and tell yourself that you're doing good."

Becoming a dad also ranks high on Dr. Valdes' list of achievements. His son has a dream of completing a full Ironman when he turns 18 years old. That may be the next time we see Dr. Valdes at the start line of another Ironman triathlon.

**Carmen Chan, SRNA C/O 2018**

### Inside Issue:

- Student News
- Clinical spotlights
- Anesthesia meetings attended
- Future events

## Clinical Spotlight

### Mount Sinai Medical Center



Jennifer McDowell has been a CRNA at Mt. Sinai Medical Center for four years. Over the course of four years, she secured a variety of bedside nursing experience in the fields of med-surg., telemetry, cath. lab, and SICU. She states that she did not previously know much about the nurse anesthesia profession but that she “fell into it.” Many of Jenny’s former coworkers from Jackson Memorial Hospital’s SICU motivated her to pursue a career in nurse anesthesia.

Jenny graduated from the FIU’s CRNA program in 2012 and has loved working at Mt. Sinai ever since. She enjoys the acuity of the patient population and the critical thinking aspect of her profession. She has a couple recommendations to be successful in CRNA school. “Aside from being intelligent, one must be extremely dedicated, flexible, open-minded and be able to choose their battles. CRNA school is very challenging and difficulties will arise from time to time. You have to learn how to deal with the problems and stress without burning yourself out,” states Jenny. Jenny enjoys her role as a clinical preceptor and feels that this role allows her to contribute tremendously to the future of the profession.

With three classes of nurse anesthesia students currently enrolled at FIU, Jenny’s advice remains the same to all: “Be patient and humble. The physical skills will all eventually come and before you know it, you will be utilizing both the knowledge and the skills. Your first few months of running your own cases will be stressful and problematic, just keep the patient’s safety as the top priority.”



## AANA Mid-Year Assembly Student Mentoring Program

On April 7-8, 2017, at the AANA Mid-Year Assembly, a group of SRNAs from around the country spent 2 days together being mentored by practicing CRNAs as part of the Student Mentoring Program. This program is coordinated by the AANA Public Relations Committee. Nurse anesthesia educational program administrators nominate students who actively and consistently demonstrate leadership qualities and skills to be a part of the program.

I was fortunate enough to be nominated by Dr. Wunder for this program. The first day of the program, there is a reception, perhaps more like a meet-and-greet. My mentor, Steven Mund, took me around to meet anyone of my choosing. I had the opportunity to speak with AANA current and past presidents, CRNA’s from other states, and CRNA-owned business people. At first, it was intimidating since there were all these people whom knew each other and can be very influential in your career. Steve walked around with me until I got the hang of it. You have a window of time to tell your story and create a memorable experience in order to successfully network. I had to figure out that my story was not “new.”

The following day, Steve and I got to spend the majority of the day together in the conference. He bought lunch and I

had the whole day to pick his brain about all my career path questions. I can honestly say this was an experience that I will always be grateful for. I created a friendship with someone who has a vast amount of business, political, and anesthesia knowledge. He was willing to share anything he could and if he did not have the answer, he made it his business to find the answer among his network of colleagues. He was also kind enough to pay for my ticket to the PAC event. Someday, you all should go to the Mid-Year Assembly. There is so much to gain by going. It answers why we do the things we do. It gives you an opportunity to have a voice.

The first step is showing up.

**Clifford Burdick, Senior Editor,  
SRNA C/O 2017**



## Congratulations to the New Chair!



Linda Wunder first became a CRNA in 1994 after attending Gannon University Hamot School of Anesthesia. She later received her PhD from Barry University in 2012. Dr. Wunder has set several career goals and achieved them in her 23 years of practice. Dr. Wunder is currently the Chair of the FIU Department of Nurse Anesthetist Practice. She first became part of the FIU faculty in 2005 and has found one of the most rewarding components of being a CRNA: the ability to teach in the nurse anesthesia profession. Dr. Wunder initially became interested in an FIU faculty position after working as a clinical preceptor with FIU students. She thoroughly enjoys having first-hand experience in the development and progression of students to independent practitioners. Aside from her career at FIU, Dr. Wunder has had several other leadership achievements including: Chief CRNA, Director of FANA, and 2012 AANA Doctoral fellow and FANA Doctoral Fellowship. She hopes to continue her research trajectory on non-technical skills and pain management.

**Frida Iturriaga, SRNA C/O 2017**



## HIGH TIMES & MARIJUANA

On November 8, 2016, Florida residents voted 'yes' on Amendment 2, The Florida Medical Marijuana Legalization Initiative. The amendment expands on the 2014 legislature that allowed for low- Delta-9-tetrahydrocannabinol (THC) and non-smoked cannabis for patients suffering from cancer, epilepsy, and chronic muscle spasms to include patients with terminal conditions under the Right to Try Act and allows for higher-THC strains. Efforts legalize marijuana has gained momentum to help curtail the opioid epidemic in the United States.

THC is a partial cannabinoid-1 (CB-1) receptor agonist that can relieve chronic pain. CB-1 receptors densely populate frontal-limbic compared to somatosensory areas in the human cortex.<sup>1</sup> This distribution of CB-1 receptors in the brain suggests that THC may target the affective qualities of pain specifically, given that the affective-motivational and sensory aspects of pain are known to be separable functions of frontal-limbic and somatosensory cortices, respectively.<sup>1</sup>

Of certain importance to the anesthesia provider are the systemic effects and drug interactions that may present as they begin to encounter more and more patients being treated with medical marijuana. Cannabis can potentiate barbiturate sleeping time, has anti-epileptic properties, decreases

the rate of serotonin uptake, and is a potent prostaglandin synthetase inhibitor.<sup>2</sup> Of interest, is its effects on the cardiovascular and respiratory system, the heat regulating system, and acetylcholine. THC causes cardiac depression and may appear as premature ventricular contractions, arrhythmias with flattening of the T-wave, T-wave inversion, or a decrease in voltage of the P-wave.<sup>2</sup> THC offers bronchodilatory effects in smaller doses but may cause pulmonary depression or pulmonary edema in larger doses.<sup>2</sup>

There is still much to learn about how the chronic use of cannabis may affect anesthetic agents. As future legislation changes and restrictions are lifted off the medical use of marijuana, the anesthesia provider must be cognizant of the variable effects that the chronic use of cannabis may present. The vigilant anesthesia provider must stay up-to-date with evidence-based practice as new research on cannabis and its effects on anesthetic agents result.

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**Michael Barrios, SRNA C/O 2018**



## Clinical Spotlight

### South Miami Hospital



Melissa Mills is the Clinical Coordinator at South Miami Hospital (SMH) and FIU Alumni. Melissa has been a CRNA for over four years at SMH. Prior to becoming a CRNA, she received her nursing experience from Baptist Hospital on a Pulmonary step down unit and later worked two years in ICU, thereafter she transferred to SMH SICU/ICU where she worked for an additional two years. Her interest in anesthesia was sparked by a family friend who was an anesthesiologist, however what “sealed the deal” was interacting and observing CRNAs in the ICU and watching them intubate patients. She states, “I am so happy with my decision and I can honestly say I truly enjoy what I do”.

What Melissa enjoys most about the profession is “the ability to provide anesthesia to numerous patients using various methods and medications, this makes it interesting and gratifying” she also says, “waking someone up from general anesthesia and bringing them to recovery comfortably and safely is such a rewarding feeling.” To unwind from a long day, Melissa loves spending time with her husband and 1 year old son and going boating.

The advice Melissa offers to SRNAs is to “learn as much as you can from each CRNA or MD you work with. This is the time to absorb others knowledge as well as their experiences. This will help build upon your own skills and make you a stronger Nurse Anesthetist.”

**Jodi-Ann Elliston, SRNA C/O 2018**



## NEW JOURNEY AS THE CLASS OF 2019

As we embark on this new journey, we not only face the challenges of a new curriculum, but we must also learn to adapt as we complete our first semester with fully online courses. With technology being embedded into education, universities are evolving from the traditional classroom setting toward technologically integrated virtual classrooms. For many of us, taking a full semester of online courses was a new experience, but indeed we have learned a lot along the way.

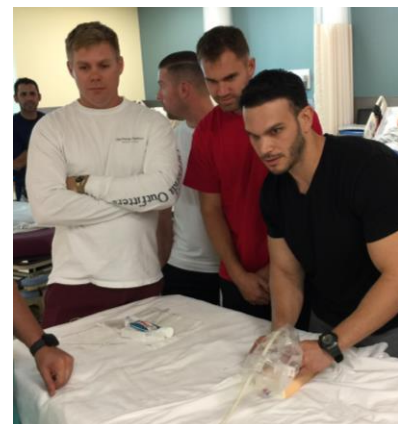
The biggest challenge that we have faced as a class has been communication. For example, many of us are still working part- time, per diem, and some of us live out of state. Our class has overcome this challenge by using technology such as Skype, utilizing the discussion forums on Blackboard, but the most useful was the integration of social media. In the past, social media has carried a negative connotation in the education realm, yet within our generation it has become an intricate part of our everyday lives. We, as a class, view social media as a resourceful tool. This platform has allowed us to interact in real time. It’s mobile, easily accessible, and user-friendly.

Blackboard, at the beginning, was challenging. Being familiar with all the resources it offers, it proved to

be helpful in our communication and academic development. As a class, we have learned tremendously. After learning how to navigate Blackboard and incorporating social media, we were able to effectively interact with each other, keep up to date with assignments, and most importantly, it allowed us to have a successful semester. Although, your first doctoral semester of CRNA school is fully online, take it as a learning opportunity and use all the resources available to you. Whether we like it or not, online classes are becoming the norm in academia, so buckle and enjoy the ride.

**Ullyses Rodriquez-Vara, SRNA C/O 2019**

**Oscar Ruque, SRNA C/O 2019**





## LEVAMISOLE COCAINE

Levamisole cocaine, an immunomodulatory agent which has not been seen in use by humans across the United States since it was withdrawn from the market in 2000, has recently resurfaced.<sup>1</sup> Traditionally used in veterinary medicine as an anthelmintic, this anti-parasitic agent has become a staple in the realm of illicit drug use. With an estimated 5-million Americans engaging in cocaine use year-round, the demand for the drug is almost insatiable.<sup>1</sup> In cocaine samples taken nationwide, about 50% of the samples were positive for Levamisole, and an analysis ran across cocaine users in Seattle Washington alone revealed that of every person testing positive for cocaine, 80% were also positive for Levamisole.<sup>1</sup>

As it translates to clinical practice, the key concern is that unlike the known effects of cocaine, the additives such as Levamisole have led to Levamisole-induced agranulocytosis, vasculitis, pulmonary hypertension, arthralgias, cutaneous manifestations in the form of hemorrhagic or necrotic bullae, and even death.<sup>1</sup> A recent review found that variability in the drug additive could also be of concern. Samples tested as far back as 2001 revealed the concentration of Levamisole in cocaine was about 1%. More recently, in 2009, the additive accounted for about 10% of the cocaine compound.<sup>1</sup>

In short, Levamisole's exact physiological effects remains unclear. One theory supports the idea of the additive potentiates the nicotinic acetylcholinergic effects, thus potentiating the euphoria by directly acting on the central nervous system.<sup>1</sup> It is also possible that the metabolite of Levamisole, Aminorex, acts as a direct agonist of the serotonin receptors.<sup>1</sup> It is critical that anesthesia providers remain vigilant and thorough in their preoperative assessments. A detailed medical and social history that is clear and accurate may make a grave difference at the time of providing anesthesia.

### Citation

Lee KC, Ladizinski B, Federman DG. Complications Associated With Use of Levamisole-Contaminated Cocaine: An Emerging Public Health Challenge. *Mayo Clinic Proceedings*. 2012;87(6):581-586. doi:10.1016/j.mayocp.2012.03.010.

**Emilio Acosta, SRNA C/O 2017**





## STRESS AND ANXIETY AMONG SRNAs: AN OVERVIEW OF COPING MECHANISMS

Student registered nurse anesthetists (SRNAs) enter nurse anesthesia programs as goal-directed, achievement-oriented individuals. Their quality of prior performance as critical care nurses caring for critically-ill patients is very high. Anesthesia school is highly-competitive and filled with potential stressors.<sup>1</sup> Stress is the body's way of reacting to change, both good and bad. Stressors, or events that evoke stress in individuals, vary among all of us.<sup>2</sup> The knowledge, skills, and administration of anesthesia are practiced in a stressful environment.

In the classroom, SRNAs are bombarded with lectures, simulation exams, and the emotional experiences of no longer the expert in the nursing unit but a novice in a new environment.<sup>2</sup> Acute stress comes from anticipated demands and pressures of the future such as attending nurse anesthesia school. One study of 1,374 SRNAs reported that on an average day, the mean stress level was 7.2 on a scale of 1 to 10.<sup>3</sup> Some individuals can identify acute symptoms of stress such as anger, irritability, depression, excessive alcohol use, elevated blood pressure, palpitations, or sleep deprivation.<sup>1</sup> In addition, SRNAs face financial strain and social adjustment that intensifies their level of stress.

Developing stress reduction techniques is essential to reduce stress and cope with the high-stress environment in field of anesthesia. Coping strategies among SRNAs include: engaging in physical activity, prescription medications such as beta-blockers

or anti-depressants, developing social support systems, or seeking mental health counseling.<sup>3</sup> Moreover, it is important that SRNAs as well as teaching faculty have the ability and knowledge to identify when stress is overwhelming before it manifests itself in unhealthy symptoms.<sup>4</sup> Identifying acute stressors and developing effective coping mechanisms is crucial to the SRNAs advancement in nurse anesthesia programs.

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**David Hernandez, SRNA C/O 2017**



## FANA 2017



From hot topics in anesthesia to the trials and tribulations of independent practice, this year's Florida Association of Nurse Anesthetists (FANA) Fourth Annual Sand and Surf Symposium at the Fort Lauderdale Marriott Harbor Beach Resort had much to offer. The four-day event allowed student registered nurse anesthetists (SRNAs) and certified registered nurse anesthetists (CRNAs) to gather and discuss pertinent issues in the anesthesia practice. The SRNA turnout was noteworthy, with predominantly Florida International University (FIU) and University of Miami (UM) attendees.

Day one encompassed anesthesia malpractice claims and lessons to be learned, a presentation on the Florida Nursing Workforce, CRNA emergency preparedness during natural disasters, and the use of an algorithm to treat post-dural puncture headaches. On the second conference day, pharmacological anesthetic techniques, anesthesia hot topics, and independent practice were

“My favorite presentation on Friday was related to total intravenous anesthesia (TIVA). In this presentation, Mr. Haffey elaborated on the beneficial effects of TIVA in various case scenarios, emphasizing important information on the use of remifentanyl, propofol, and lidocaine drips,” said Paul Echeverri, junior FIU SRNA. Brooke Nettuno, junior FIU SRNA, also appreciated Mr. Haffey's presentation stating, “it is important for students to attend conferences to learn about current practices in the field of nurse anesthesia such as TIVA.”

Day three and day four were attention-grabbing as well and had our very own FIU professors as presenters. Dr. Glymph discussed the educational HUDDLE intervention and how it can aid in providing reliable patient care utilizing interprofessional collaboration. Another FIU professor, Dr. Gonzalez, lectured on the role of anesthesia providers in the implementation of the Early Recovery After Surgery (ERAS) protocol.

Jessica Colindres, junior FIU SRNA, attended the weekend sessions and mentioned, “I really enjoyed Sunday's presentations when there was a panel session with CRNAs discussing topics that currently affect CRNAs and their passion really showed when they spoke about our future profession.”

Overall, the FANA convention exposed both SRNAs and CRNAs to many of the latest healthcare trends that can impact not only the anesthetic care of patients but also the CRNA profession. SRNAs were also given the opportunity to network with peers and professionals from other regions of the state and country. Being involved and attending the FANA convention this past March was extremely valuable and had countless benefits.

**Nathalie Felipe, SRNA C/O 2018**

**Amanda Thornton, SRNA C/O 2018**

## KETAMINE TREATMENT CENTERS

Recent evidence strongly suggests that ketamine produces a rapid-onset antidepressant effect in humans with major depressive disorder (MDD). This commentary focuses on the evidence for the efficacy of ketamine as a rapid-onset antidepressant and the implications of its mechanism of action for yielding insight into the biochemical basis of MDD.

MDD is a serious neuropsychological disorder associated with significant morbidity and mortality (suicide). According to the CDC, 1 out of 20 Americans of 12 years of age and older reported current depression in 2015–2016. A first depressive episode is most likely to occur between the ages of 30 and 40 years, and the etiology is multifactorial, involving biological and psychosocial contributions. Some evidence links it to short allele of the 5-HT (5-hydroxytryptamine, serotonin) transporter gene SLC6A410 located on human chromosome 17 (17q11.1–q12).

Ketamine Treatment Centers were founded in 2011 by Dr. Steven P. Levine. He is a psychiatrist who places great emphasis on the importance of psychotherapy, however, medication is often a necessary component of treatment, and he was dissatisfied with the relatively ineffective available options with burdensome side effects. He pioneered a protocol for the clinical use of ketamine infusions, with the assistance of Dr. Anand Dugar, a board-certified anesthesiologist, combining the expertise of both psychiatry and anesthesia to provide unrivaled, world-class care for the treatment of major depression disorders.



The mechanism of action of ketamine-induced analgesia and dissociative anesthesia is unknown. Ketamine is known to interact with multiple CNS receptors but clear association between receptor interaction and specific behavior has not been established. Ketamine binds noncompetitively to the phencyclidine recognition site on N-methyl-D-aspartate (NMDA) receptors. In addition, ketamine exerts effects at other sites including opioid receptors, monoaminergic receptors, muscarinic receptors, and voltage-sensitive sodium and L-type calcium channels and neuronal nicotinic acetylcholine receptors. Ketamine has a broad spectrum of pharmacologic activity. In addition to its affinity with the NMDA, it binds with about equal affinity with the dopamine D2 receptor and (with about 10-fold less affinity) with opioid receptors (MOR, DOR and KOR). Interestingly, it also inhibits (albeit with lower affinity) the neuronal reuptake transporters of 5-HT and norepinephrine (SERT and NERT, respectively) the mechanisms of action of the SSRIs and SNRIs, the most commonly used antidepressants.

Ketamine Treatment Centers offers infusions as a simple outpatient procedure. Following a consultation to determine the appropriateness and safety of this treatment, patients are guided each step of the way with the help of a clinical coordinator to ensure a smooth, supportive process.

Since the effects of a single infusion are short-lived, patients who show response (>70% will show response) will receive a series of infusions over a 2-3 week period. This is an off-label use of ketamine. The FDA has not approved this medication for this use. However, its safety and effectiveness have been demonstrated in multiple research studies.

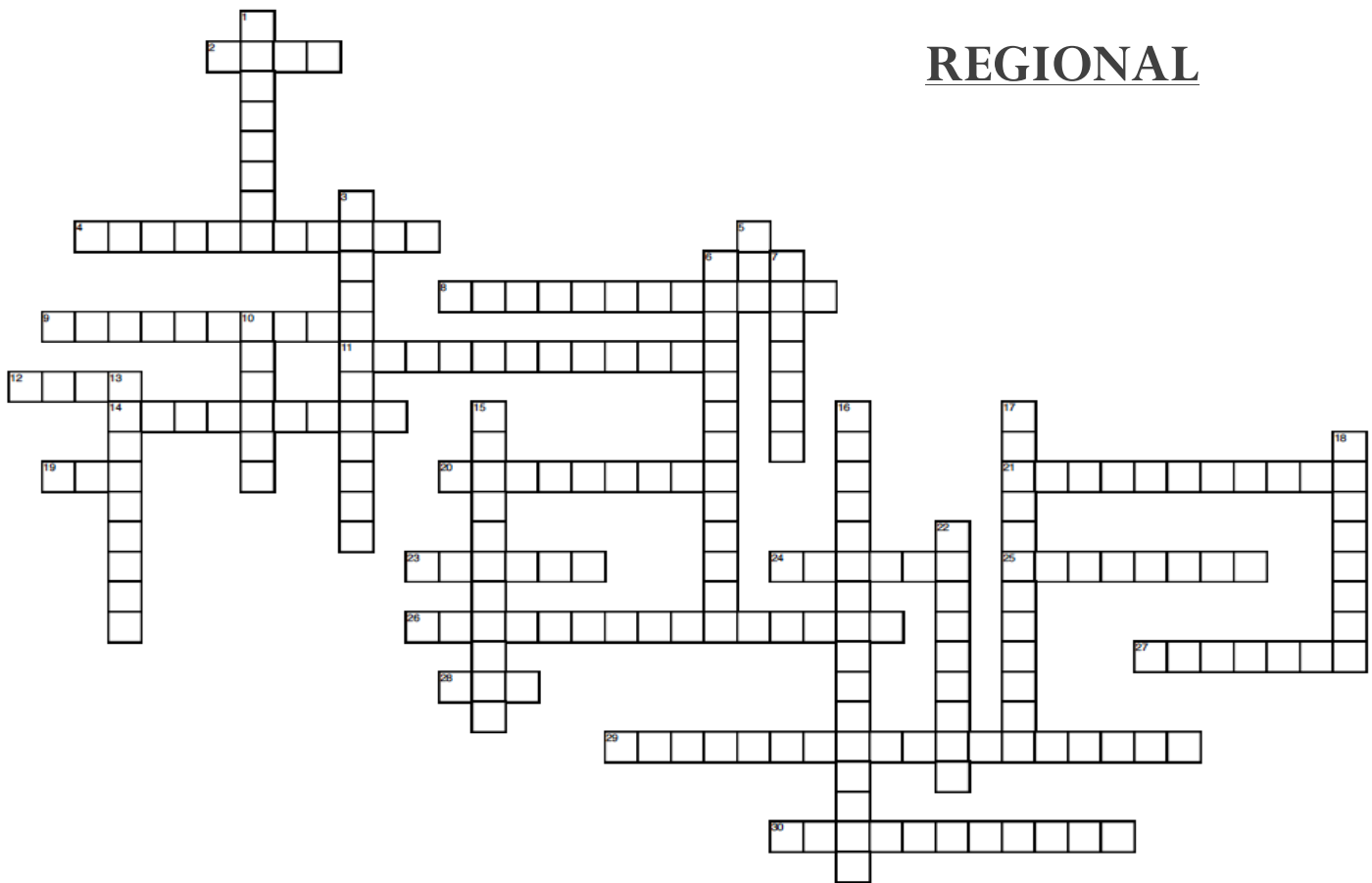
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**Izaskun Green, SRNA C/O 2018**

**Larisse Greenwell, SRNA C/O 2018**



**REGIONAL****ACROSS**

- 2 Patients who received IV heparin therapy should not have neuraxial anesthesia until their \_\_\_\_ lab is normal.
- 4 It is estimated that only 30 to 80 mL of the total CSF is present in the \_\_\_\_ \_\_\_\_.
- 8 What is the first ligament the SRNA passes through during a midline approach?
- 9 How long should LMWH (enoxaparin) be stopped before performing regional anesthesia to prevent a hematoma?
- 11 To create a hypobaric solution the SRNA would dissolve the medication in \_\_\_\_.
- 12 How many cervical vertebrae are there in the spine?
- 14 Caudal techniques are especially useful in the \_\_\_\_ population but also can be used for L & D and for chronic pain states.
- 19 How many minute(s) must the betadine solution air dry before beginning the neuraxial procedure to be effective?
- 20 A regional block to T10 is the level of the \_\_\_\_.
- 21 \_\_\_\_ occurs due to the blockade of the cardiac accelerators.
- 23 \_\_\_\_ Las are hydrolyzed by plasma cholinesterases.
- 24 This needle has a rounded non-cutting bevel and is less likely to cause dura trauma.
- 25 Infection at the site of injection is considered a \_\_\_\_ contraindication.
- 26 The \_\_\_\_ of CSF is 1.004-1.009.
- 27 The \_\_\_\_ grip uses the patient's body as a firm support for the needle stabilizing hand when doing regional anesthesia.
- 28 In the average adult, the epidural space is 4-\_\_\_\_ cm away from the skin.
- 29 The golden standard for treating a post-dural puncture headache- \_\_\_\_.
- 30 The name of the nerve group in the lower dural space

**DOWN**

- 1 The potential space between the ligamentum flavum and the dura.
- 3 The supraspinous and \_\_\_\_ ligaments are bypassed when doing a lateral approach for a subarachnoid block.
- 5 The \_\_\_\_ fibers are the first to be blocked when giving local anesthetic during an epidural.
- 6 The test dose during an epidural placement is used to detect if the catheter is either in the subarachnoid or \_\_\_\_.
- 7 \_\_\_\_'s line is formed between the tops of the iliac crests.
- 10 Which gender is at higher risk of a post dural puncture headache?
- 13 Best drug when a patient is having SYMPTOMATIC bradycardia.
- 15 The \_\_\_\_ nerve fibers that innervate the heart, also known as the cardiac accelerators, are located from T1 to T4.
- 16 Which ligament is split into small segments between spinous processes?
- 17 Where is cerebrospinal fluid located?
- 18 Most common complication of an epidural insertion is \_\_\_\_.
- 22 Site of action for neuraxial blockade

**Vivien's Chiffon Cake Recipe**

**Ingredients:**

1. 2 cake pans (one for oven baking, other is for egg whisking)
2. Egg separator (optional)
3. Egg-whisking tool
4. 120g flour
5. 50g sugar
6. 4 eggs
7. 90g milk
8. 90g vegetable oil
9. 3g salt
10. Handful walnuts or peanuts (optional).



**Baking:**

11. Preheat oven 350°F for 10 mins. while preparing the cake.
12. Use egg separator to separate egg white and yolk.
13. Place them in different cake pans.
14. Add sugar to egg white.
15. Use egg-whisking tool to whisk egg white.
16. Whisk until a foam-like strand forms at the tip of whisking tool.
17. Add flour, oil, milk, salt, and walnuts to the egg yolk pan.
18. Mix them evenly and avoid big air bubbles.
19. Add egg white into egg yolk pan evenly.
20. Mix them one more time evenly.
21. Place into oven. Set temperature to 370°F for 25 mins.
22. Leave the cake to cool off for 20 mins.
23. Enjoy!

Vivien Li, SRNA C/O 2018



**Upcoming Events:**

**School Schedule**

Start of Summer 2017 semester - May, 18

**Conferences**

**Spinal and Epidural Workshop**  
 May 11-13, 2017  
 AANA Foundation Learning Center  
 Park Ridge, Ill.

**AANA**  
 Annual Congress. Seattle, WA  
 Sept.8-12, 2017

**FANA**  
 Annual Meeting. Tampa, FL  
 Oct. 9-12, 2017

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**Answers for the Previous Edition**

**Pediatrics**

**Test Your Knowledge**