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Poster Abstracts

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Evidence Based Practice General Posters

A1

The Application of Radiofrequency Ablation in Acute and Chronic Pain Management

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Background/Purpose/Question: Acute and chronic pain treatment has been changing in the medical field with the increase in the opioid epidemic. The purpose of our project is to determine the use of radiofrequency ablation in the treatment of pain. Our project addresses the following question: Is radiofrequency ablation a viable option in the treatment of both acute and chronic pain compared to standard pain therapies?

Methods/Evidence Search: A thorough, comprehensive literature review was conducted to search for articles relevant to radiofrequency ablation for patients with acute and chronic pain. Key search terms included: Radiofrequency ablation, acute pain, chronic pain, mastectomy, temporomandibular disorder, knee pain, back pain, cancer pain, joint pain, surgical pain, and facial pain. Several electronic databases were searched through the University of South Florida's InterLibrary database including PubMed, CINAHL, EBSCO, PsychINFO, and MEDLINE. The references of systematic reviews and metanalysis were searched for landmark studies involving radiofrequency ablation.

Synthesis of Literature/Results/Discussion: Radiofrequency ablation has been used to treat pain because it destroys afferent nerve fibers originating from a nociceptive focus that extends to the central nervous system (CNS). Thus, the disruption of input from afferent nerve fibers is the mechanism of alleviating many difficult-to-treat chronic pain conditions. Emerging evidence has shown that chronic pain is a neuroinflammatory disease, as the noxious nociceptive inputs cause neural sensitization of the nervous system in the brain, spinal cord, as well as in the peripheral nerves (Latremolier et al., 2009). Due to the recent advancement in fluoroscopic-guidance, RFA has been able to safely target highly specific, and otherwise unreachable nociceptive nerves in a safe manner. This has broadly increased the scope of RFA for an array of acutely painful conditions, such as post-mastectomy pain, pain associated with joint arthroplasties and spine surgery, and post-tonsillectomy pain. While the beneficial effects of RFA on chronic pain have been well established, the novel treatment of acute pain with RFA therapy is showing promising results in research.

Conclusion/Recommendations for Practice: Radiofrequency ablation shows significant improvement in the treatment of both acute and chronic pain. Radiofrequency ablation is a promising option for the treatment of pain while decreasing the need for opioids which is important with the opioid crisis in the United States. Recommendations for an increase in the utilization of radiofrequency ablation in the treatment of pain. Radiofrequency ablation should also be studied more in the acute pain setting as an earlier option in the treatment of pain.

Evidence Based Practice General Posters

A2

Updated Practice on Induction of Buprenorphine in Opioid Dependent Patients

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Background/Purpose/Question: According to the recent NHI Survey, approximately 20% of adults had chronic pain and among them, 8% had poorly managed pain despite receiving opioid therapy. Although buprenorphine is used in treating patients with opioid dependence, it has been a challenge for clinicians to successfully switch patients from opioids to buprenorphine. This is partially due to unfamiliarity with its complex pharmacological properties. Inadequate equianalgesia when rotating opioids to buprenorphine and the route of administration can cause significant withdrawal. Currently, there are two strategies of induction of buprenorphine: micro dosing and tapering which have proven to be effective in diminishing the withdrawal symptoms. Our study aims to provide anesthesia providers with current evidence-based practice to help them make practical and informed decisions on the proper induction of buprenorphine.

Methods/Evidence Search: Four systematic reviews reported successful induction to buprenorphine using micro dosing and bridging as the most common strategies. Specifically, transition to buprenorphine with complete cessation of opioid agonists was achieved in 87.5% of cases. Although withdrawal during initiation occurred in 58.3% most cases were mild in severity. Micro dosing, utilizing buprenorphine, is a preferred technique for individuals with opioid dependence who are attempting to improve their pain management while treating their opioid use disorder (OUD). This technique is accomplished through various regimens depending on the individual's opioid status and their clinical opioid withdrawal scale (COWS) score. One systematic review described 26 regimens with a starting dose of 0.03-1mg and a maintenance dose of 8-32mg The bridging technique using transdermal buprenorphine, allows for its slow rise in blood levels and the progressive decline in the levels of potent opioids thereby decreasing the risk for withdrawal symptoms. Transdermal buprenorphine can be used to bridge the patient. Limitations of the literature included small sample sizes and populations that were often racially and ethnically homogenous. Future research should further investigate the role that transition to buprenorphine plays in treating opioid dependent patients among larger more diverse sample sizes.

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Conclusion/Recommendations for Practice: Buprenorphine has many unique pharmacological properties that make it a first-line opioid for treating chronic pain and opioid dependence. Due to the misinterpretation of preclinical data, buprenorphine was once considered a partial mu agonist. This leads to many clinicians mismanaging the induction of buprenorphine. Hence, clinicians need to familiarize themselves with the pharmacological profile of buprenorphine, e.g., pharmacokinetics and pharmacodynamics of buprenorphine to avoid the unnecessary withdrawal when initiating buprenorphine therapy. Currently, the use of micro dosing and bridging with the transdermal patch techniques are both effective in transitioning patients from potent opioids to buprenorphine with minimal withdrawal and side effects. The pharmacological properties of buprenorphine decrease the risk of misuse and euphoria, providing a balance between adequate analgesia and minimal adverse events. Buprenorphine is a schedule III opioid therefore, no additional waivers needed to prescribe and/or dispense buprenorphine. As more CRNAs are involved in pain management to improve access of care, it is crucial for CRNAs to know updated induction of buprenorphine to improve patients' safety.

Quality Improvement General Posters

A3

Virtual Advocacy During the Pandemic: The CRNA Experience in South Carolina

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Background: Like so many businesses at the onset of the Covid-19 pandemic, the South Carolina General Assembly shut down in March 2020. As a result, bills did not pass for removal of physician supervision of Certified Registered Nurse Anesthetists (CRNAs). In January 2021 the state legislature resumed in-person work; however, offices remained closed to anyone except lawmakers (Collins, 2021). The South Carolina Association of Nurse Anesthetists (S.C.A.N.A.) filed new bills for removal of physician supervision. To fulfill their mission of advocacy, S.C.A.N.A. began holding grassroots advocacy meetings by videoconference. Over 40 meetings were held with legislators from spring 2021 to spring 2022. PICOT question was as follows: when meetings with state legislators are performed in a videoconference versus in-person format, what are the perceptions of legislator accessibility and policy awareness among S.C.A.N.A. members? By investigating best practices for meetings, this project sought to clarify how CRNAs can advocate for their profession.

Method: The project consisted of three surveys and was exempt from IRB approval. The first survey, "Perceptions of Legislator Accessibility and Policy Awareness Amongst CRNAs When Legislator Meetings Occur by Videoconference," was created for CRNAs/SRNAs who had participated in videoconference meetings with South Carolina legislators since 2021. The second survey, "Perceptions of In-person Meetings" was developed for CRNAs and SRNAs who attended S.C.A.N.A. Lobby Day 2/2/2022. "Legislator Perspective on Virtual versus In-person Meetings" was created for legislators who had participated in videoconference meetings with S.C.A.N.A. leaders and CRNA/SRNA constituents since 2021. The project leader utilized themes found in the literature synthesis regarding virtual meetings as a base for developing the question and response systems, such as effectiveness, convenience factor, stress levels, and communication. 5-point Likert scales were used for questions and responses. Each survey was distributed to participants by email with an anonymous link.

Results: Survey Responses 1-CRNAs/SRNAs in virtual meetings 61.5% 2-CRNAs/SRNAs at Lobby Day 2/2/2022 51.2% 3-SC Legislators in virtual meetings 10.3% Survey 1-43.8% disagreed videoconference meetings were as effective as meeting in person. 93.8% agreed pre-meeting huddle was effective education method to understand policy issues. Survey 2-59.1% responded true to "in-person meeting is more effective than videoconferencing;" 72.7% T to "I prefer to meet with my legislator in-person than by videoconference." 68.2% T to "an in-person meeting is more stressful than a videoconference meeting." 90.9% T to "I understood the legislative issues, priorities, or bills before meeting with my legislator in-person." Survey #3-67% legislators disagreed videoconference meeting was more effective than meeting in-person. 67% neutral they understood legislative initiatives of S.C.A.N.A. after videoconference. Surveys 1 & 2 were qualitatively coded after examination of comments. Project leader termed codes positive, stressful, conversation, and body language.

Discussion: Based on survey results, S.C.A.N.A. is following a hybrid model of advocacy. The Director of Advocacy is holding videoconference meetings with legislators; they allow CRNA/SRNA participation from remote geographical parts of the state. In-person meetings are also scheduled on a regular basis; there are components that have not been replicated online. They offer unique/meaningful interaction such as organic flow of conversation and no communication delay. Body language such as direct eye

contact, handshakes, and observation of facial expressions are built-in to the experience. Stress occurred for participants in both modalities. Strategies to reduce stress/increase advocacy self-efficacy can be provided at huddles, state meetings, and in nurse anesthesia education. Two limitations-low response rate from legislators and survey design. S.C.A.N.A. pivoted as the world did when there were Covid-19 restrictions in place. Over 40 virtual meetings allowed advocacy for nurse anesthesia practice when there was no informal communication being held in public offices. To continue S.C.A.N.A.'s mission, this modality provided a vehicle for a conversation among CRNAs, SRNAs, and legislators. Due to the significant number of states in legislation, this project could provide insight to other states that need an alternative modality for grassroots advocacy.

Quality Improvement General Posters

A4

First-Time Examination Test Takers: Methods to Improve Success

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Background: The demand for anesthesia emphasizes how important it is for programs to integrate strategies for students to pass the National Certification Exam (NCE) on the first attempt. In the latest report by the National Board for Certification and Recertification of Nurse Anesthetists, the number of new graduates taking the NCE increased from 2421 candidates to 2630 candidates. For those taking it for the first time in 2020, the pass rate was 85.2% while the trend over the previous 5 years was 84.2%. Recent studies show that only 62.8% of repeat candidates pass on their second attempt. The objective of this project was to develop a strategy that best prepares students for the certification exam which included identification of at-risk test takers and design of a remediation plan to help them prepare.

Method: In their second year, students took a comprehensive exam during the spring semester and the SEE during the fall semester. In their final semester, students completed another comprehensive exam and began a review course on NCE tested material. After completion of two quizzes in the course, the students were evaluated using a midterm exam. Students from Class of 2021 and 2022 were identified as being at risk of not passing on first attempt if they scored below 400 on the SEE and less than the national average on three of the five exams or quizzes. After the at-risk test takers from 2022 were identified, a 5-week remediation study plan was assigned. The remediation plan was the same for all the participants and the project leader communicated with at-risk students to check their progress. The study plan consisted of material from specific units within the board preparation program along with practice exams. After Class of 2022 at-risk students took the NCE, the pass rate was calculated and compared to those from Class of 2021.

Results: The first-time pass rate of those identified as at-risk of not passing the NCE on their first attempt and underwent a 5-week remediation plan in the Class of 2021 was compared to those in Class of 2022. In the class of 2021, 14 students were identified as at-risk. The average NCE score for the 14 at-risk students was 449 and notably, 5 at-risk students passed on their first attempt, and their average NCE score was 481, however, 9 at-risk students did not pass on their first attempt, and their average NCE score was 431. In the Class of 2022, 11 students were identified as at-risk. The average NCE score for the 11 at risk test takers was 443 and notably, 5 at-risk students passed the NCE on their first attempt, and their average score was 479., however, 6 at-risk students did not pass the NCE on their first attempt, and their average score was 413. For both the Class of 2021 and 2022, those identified as at-risk had lower average scores in every measure versus those that were identified as not at-risk.

Discussion: In the 2021, 11 students in were identified as at-risk of not passing the NCE on first attempt, and 5 (36%) passed on first attempt. In 2022, 11 students were identified as at-risk, and 5 (45%) passed on their first attempt. In 2021, the average NCE score for at-risk test takers was 465, and in the Class of 2022, it was 472. Limitations included the time frame in which the project occurred, outside distracting variables for students, and cost of additional preparation programs. The sample size and length of remediation plan were also limitations. It is important to identify at-risk test takers early using various data points such as grades in core science courses along with performance on national exams such as the SEE. Recommendations include beginning a remediation plan with at-risk test takers at least 6 months before graduation, closely monitoring their progress and completion of the remediation plan

and having consequences associated with not completing it. Most of the research on passing healthcare certification exams is focused on appropriately identifying nursing or medical students at risk. Research should concentrate on best methods to identify at risk students early in programs. Research is also warranted on identifying best methods to develop individualized remediation plans for students identified as at-risk and the right timing to begin remediation plans.