Can Dexamethasone Reduce Postdural Puncture Headache?

To the editor: Spinal anesthesia (SA) is accomplished by using a local anesthetic in the subarachnoid space. Postdural puncture headache (PDPH) is considered a potential complication of both SA and epidural anesthesia, having been reported first in 1898. PDPH has been estimated to occur in 11 to 66 percent of cases when a dural puncture has occurred.1 PDPH intensifies with sitting, coughing or sudden movement and improves by sleep and increased abdominal pressure. The pressure difference between the subarachnoid space and overlying tissues with loss of cerebral spinal fluid is the cause of PDPH.2 Mainstays in the treatment of PDPH include oral caffeine, crystalloid infusion, and bed rest. In refractory cases an epidural blood patch may be performed.2-4

The risk of PDPH is one reason that a patient may not consent to spinal or epidural anesthesia.5 Dexamethasone is a strong corticosteroid that has anti-inflammatory and analgesic effects.6 Studies demonstrate analgesic effects of the drug in doses of 8 to 10 mg.7,8 In a 2012 clinical trial the effect of dexamethasone (8 mg) on PDPH and its incidence in cesarean section patients in the first 24 hours and up to 1 week after surgery was studied.9 The findings showed that the mean pain score changed from 1.8 ± 6.5 to 1.2 ± 1.6 after treatment.10 Corticosteroids may help to reduce pain by inhibiting the conversion of arachidonic acid into pain producing mediators (prostaglandin I2, E2 and leukotriean B4) and also by preventing the production of proinflammatory cytokines (IL-1, IL-6 and TNF-α). In sum, intravenous dexamethasone may reduce the severity of pain and possibly the incidence of PDPH, although further studies are needed before clinical use can be suggested.

REFERENCES

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Forced-Air Warming Design

To the editor: Thank you to the authors of the recent study1 examining filtration performance and bacterial emissions and/or internal microbial buildup in forced-air warmers. The results of this study may ultimately lead to device improvement.

Readers must carefully consider the limitations pointed out by the authors including the unknown maintenance status of the devices and sampling was not done with the coverlet attached as per the manufacturer’s direction. It is disturbing to hear anecdotaly that some nurse anesthetists and surgeons reading this and similar studies may

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stop using forced-air warmers. The authors did not suggest abandoning use of these devices.

Our group recently prepared an evidence-based review of forced-air warmers and the risk of surgical site infections. We reviewed 15 studies and found the evidence continues to support forced-air warmer use according to the manufacturer’s directions. Our findings agreed with those of an ECRI Institute evidence-based review published after we submitted our paper. As was properly disclosed, a co-author of the present study is employed by a manufacturer of a device directly competing with manufacturers of forced-air warmers. We look forward to future independently funded well-conducted randomized controlled trials examining forced-air warmers and the risk of surgical site infections.

Note: The authors elected not to respond.

REFERENCES

Paul Austin, CRNA, PhD
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Pulseless Electrical Activity
To the editor: I am writing regarding Dr. Johanna Newman’s paper on pulseless electrical activity (PEA) in a pediatric patient in the December 2013 issue. While I believe this article does a wonderful job of reviewing PEA as it occurred, I believe in addressing the treatment of PEA this article completely misses the more important lessons learned in this case. I’ll convey some of my personally held practices and beliefs in order to better frame my comments.

Lesson 1: Time delay in observing, orienting, deciding, and acting is the crux of the problem. In this case it seems the provider relied on their visual assessment of the patient’s chest wall motion, combined with ETCO2 to assess the adequacy of the respiratory cycle in a toddler undergoing rigid bronchoscopy. The better choice is use of the precordial stethoscope, for many reasons. When applied as the first monitor, the precordial stethoscope establishes the auditory tones of a baseline respiratory cycle. Then, at each breath, a continual reassessment is possible (as the earpiece never leaves the ear intraoperatively), comparing each subsequent breath to the baseline. The hemodynamic corollary would be an arterial line measuring a blood pressure with each contraction of the heart, as opposed to a noninvasive device cycling at intervals, often every 3-5 minutes. Additionally, when using eyesight to grossly assess ventilation in the toddler, one must recall the very compliant nature of the child’s chest wall and lung tissue, while adding that each time you look away and then back, your baseline is variable. If your baseline is moving, your reference point is automatically invalid and you are making what aviators refer to as a controlled flight into terrain. Thusly you feed the loop with valid data, allowing you to process that data real time, facilitating subsequent decision making.

Lesson 2: Staying out of trouble is far better than getting out of trouble. We owe it to our patients to maximize safety by managing their care from the standpoint of risk mitigation rather than risk management. In other words, our best practices should focus on analyzing not how to best respond to this type of catastrophe, but on how to avoid it in the first place. As near as I can tell from the article, the first sign of distress was PEA. The cascade of events began long before the PEA, and offered many points in which needed steps were not taken. I’m not saying this to be critical of the provider but rather to point out for all of us that we all stand to improve our practices in some way, every day. Stories like this are important to make public for the purpose of all of gaining knowledge, but we must focus on the real takeaways from it, and PEA management isn’t the key point here. Adding the details of practicing with a precordial stethoscope is much more useful, or even a discussion of the utility and plus minus of each of our monitors. Those are actionable discussions, in other words, we can all gain from them and change our collective practices accordingly, today.

Lesson 3: I am a firm believer that we must all be students of history, avoiding the proverbial doom of repeating it. Anesthesia was performed successfully for over a century using monitoring techniques that lacked any electrical power source. I was fortunate to train with some who practiced during those years, and when, in a bind, I think back to how they made it through that point here. Adding the details of practicing with a precordial stethoscope is much more useful, or even a discussion of the utility and plus minus of each of our monitors. Those are actionable discussions, in other words, we can all gain from them and change our collective practices accordingly, today.
Asthoscope is a low-tech device with a huge payout. In my opinion it is vastly underrated and underused. Our reliance on high technology sometimes exposes the flaws in doing so, and it is up to us as practitioners to know those inherent flaws ahead of time so we can adjust our plans accordingly. This is our professional responsibility.

**Bill Teskey, CRNA**
McAllen, Texas

**REFERENCE**


**Response:** Thank you, Mr Teskey, for reading my article and taking the time to provide an informative response to my case report. I am a firm believer that the motto in anesthesia is “vigilance.” Failure of vigilance can lead to anesthesia mishaps or catastrophic outcomes. Monitors used in anesthesia are an extension of the provider’s senses that increase vigilance, awareness, and observational acuity. The current AANA Standards for Nurse Anesthesia Practice state that, “Ventilation must be continuously monitored by auscultation, chest excursion, and confirmation of end-tidal carbon dioxide during controlled or assisted ventilation.”

Since the 1980s, anesthesia has experienced technological advances that have improved the provider’s ability to monitor a patient during an anesthetic. With the advent of pulse oximeters, capnography monitors, and electrocardiography we have replaced precordial stethoscopes as a monitor during anesthesia. As a nurse anesthetist, most of my clinical experience has been spent providing anesthesia to pediatric patients. In my clinical practice and in teaching student nurse anesthetists I am an advocate for the use of monitors that will improve your ability to assess your patients and provide a safe anesthetic. The precordial stethoscope is a vital monitor that should not be forgotten especially when providing anesthesia to pediatric patients. Precordial stethoscopes provide the anesthesia provider with the ability to listen to the quality of heart and breath sounds, thus improving patient outcomes and safety. In the case report I failed to mention that a precordial stethoscope was used, which led to the positive outcome in this case. Mr Teskey, thank you for continuing to advocate for improved monitoring that will improve patient safety and lead to improved patient outcomes.

**Johanna Newman, CRNA, DNAP**
Miami, Florida

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2. Webster TA. Now that we have pulse oximeters and capnographs, we don’t need precordial and esophageal stethoscopes. *J Clin Monit.* 1987;3(3):191-192.