Learning From Others:

A Case Report From the Anesthesia Incident Reporting System

Anesthesia Quality Institute
ANESTHESIA INCIDENT REPORTING SYSTEM (AIRS)

Review of unusual patient care experiences is a cornerstone of medical education. Each month, the AQI-AIRS Steering Committee abstracts a patient history submitted to the Anesthesia Incident Reporting System (AIRS) and authors a discussion of the safety and human factors challenges involved. Real-life case histories often include multiple clinical decisions, only some of which can be discussed in the space available. Absence of commentary should not be construed as agreement with the clinical decisions described. Feedback regarding this article can be sent by email to **airs@asahq.org**. Report incidents or download the AIRS mobile app at **www.aqiairs.org**.

It Could Never Happen To Me ...

Femoral nerve catheter was placed on the right (wrong side) instead of the operative left side. Immediately prior to beginning the block or any sedation, patient was asked which site was going to be operated on, and stated "right." The femoral nerve catheter was placed prior to surgery since regional team had enough time to do both femoral nerve catheter and CSE. Overnight on POD #0, regional team was paged by nursing staff regarding nerve catheter site. On-call anesthesia resident instructed nurse to stop infusion pump and instead, give I.V. and PO pain medications. In the morning of POD #1, femoral nerve catheter was removed by regional team. Upon chart review, it was confirmed that surgical consent stated "left." On physical exam, there was no pen marking on right (non-operative) leg.

Discussion:

Wrong surgery events, although occasionally innocuous, can be devastating for the patients, for the operator and for the institution. Wrong surgery events are the most common sentinel event reported to The Joint Commission and are estimated to occur at a rate of 0.09-4.5 per 10,000 cases.[1] Wrong surgery events include wrong side (wrong leg amputated, wrong kidney removed), wrong patient, wrong procedure (tubal ligation performed on woman scheduled for laparoscopy for infertility), wrong site (spinal level, digit) and wrong type of implant. They have been designated by the National Quality Forum (NQF) as "never events," meaning that they should never happen, given that proper procedures and policies are in place and followed.

The focus on wrong site surgery began in 1998, when it was reported that orthopedic surgeons had a 25 percent chance of performing a wrong site surgery over their career.[2] This led to the "Sign Your Site" national campaign by the American Academy of Orthopedic Surgeons, followed by recommendations from the American College of Surgeons regarding guidelines to eliminate wrong surgery events. Shortly thereafter, the Joint Commission introduced the Universal Protocol, which became effective at all Joint Commission-accredited institutions in 2004 (available at **www.jointcommission.org/assets/1/18/UP_Poster1.PDF**).[3]

Implementation of the Universal Protocol was initially felt to be ineffective in reducing wrong surgery events, but this may no longer be true. Recent reporting rates show a decrease in wrong surgery events. Neily and colleagues found a steady decline in wrong surgery events reported in the VA system between 2001 and 2009[4]; the Pennsylvania Patient Safety Authority reported a 45 percent reduction between 2007 to 2008 to 2010-11; and the state of Minnesota reported a 36 percent reduction from 2012 to 2013.[5] Wrong side or site for regional analgesia procedures and pain procedures may not have enjoyed the same improvement, in part because the Universal Protocol has not been traditionally required or rigorously implemented for these procedures.

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The reporting rate of wrong side regional analgesia or pain procedures may be equivalent to or even higher than that of wrong site surgery, although arguably involving a lower level of harm. A recent review by Barrington and colleagues[6] cites estimates of 3.63:10,000 (Australia and New Zealand), 2.59:10,000 (International Registry of Regional Anesthesia) and 1.28:10,000 (Pennsylvania data). As with other wrong surgery events, these events are obtained through self-reporting, and the actual rates may be higher. Although the typical risk of serious harm may appear to be less than that associated with the wrong site in

surgical procedures, it is not negligible. The patient receiving a block on the non-operative site certainly will receive less than optimal pain management and will be more likely to require higher doses of opioids than if optimal regional analgesia were provided. The higher opioid dose puts the patient at risk of opioid-induced constipation, respiratory depression and potential for dependence. Less tangible outcomes include decreased confidence and satisfaction for the patient and surgeon. This is important because the current evidence indicates that regional block as part of a multimodal analgesia is central to enhanced recovery after surgery programs and likely contributes significantly to shorter length of stay.[7,8]

The review by Barrington and colleagues[6] of cases reported in the literature provides insight into factors that contribute to wrong-site blocks. These include:

- Time Out or Universal Protocol is not done prior to performing a block (other team members such as surgeon or circulating nurse are not available or are just not present; often there is not even a preop nurse available).
- Block is performed by regional analgesia team not involved in anesthesia for the surgical procedure; location is the preoperative area, not the O.R.
- Patients are trusted to verify the correct site, with predictable results (they often have bilateral disease, and both sites are planned at different times; confusion or cognitive issues).
- Consent for the surgical procedure is not available at the time of block procedure.
- Confusion regarding side when patient is turned from supine to prone, especially for dual-site blocks (femoral and sciatic blocks for thigh surgery).
- Surgical site is not yet marked (surgeon not available).
- Time pressure.
- Distraction (argument with surgeon just prior to block, attending called out of the room, timeout begun but interrupted and not completed).

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TABLE

Universal Protocol Revised for Regional Anesthesia or Pain Procedure
Adapted from The Joint Commission Universal Protocol Poster available at
www.jointcommission.org/assets/1/18/UP_Poster1.PDF

Pre-procedure verification
• Verify correct procedure, for the correct patient, at the correct site; verify using at least two people, and verify using surgical consent, booking worksheet, chart, etc. • If possible, involve the patient in the process • Identify items critical to the procedure • Use a standardized list to ensure all elements are included
Check the procedure site mark (as performed by the surgeon)
• When possible, have surgeon mark the site prior to beginning the block procedure • Mark the site to be blocked if the surgeon's mark is not visible at the site. • If possible, involve patient in site marking • Use an unambiguous mark that is uniform throughout the institution • Use a mark that is at or near the block site • Mark should be permanent enough to be visible after skin preparation and draping
Perform a Time Out
• Conduct a Time Out immediately prior to starting. This should follow a standard script • Designated member of the team assigned to initiate the Time Out • Time Out should include at least one other member of the team • Time Out should verify the patient identity and the correct site • If multiple procedures or blocks are to be done, another Time Out should be performed prior to starting each subsequent procedure (i.e., after turning patient prone to perform sciatic block after performing supine femoral nerve block)

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In addition to the factors present at the time of the block, studies have shown that even perfect application of the Universal Protocol will not prevent all wrong surgery events (or wrong blocks).[5,9] An in-depth review of all wrong surgery events reported to the VA found that 16 percent were due to either upstream or downstream events.[9] Such events included side markers reversed during imaging, transcription errors on catheterization reports, biopsy specimens labeled with wrong patient name, charting performed in wrong patient chart, multiple lesions in lung of patient sent for fine needle biopsy (correct lesion not specified in consult), and so on.

Given the tremendous ingenuity of humans to inadvertently err, it is clear that obtaining a true "never" rate for these "never events" will require continued extensive efforts. First and foremost, every regional analgesia and pain procedure team must specifically prove to themselves that the block is being performed in the correct location on the right patient.

The American Society of Regional Anesthesia and Pain Medicine has published a pre-block checklist that includes the following elements:[10]

1. Identification of patient using two criteria
2. Review allergies and anticoagulation status
3. Surgical procedure consent is confirmed
4. Block plan is verified, site is marked
5. Necessary equipment is present, drugs are prepared and labeled
6. Resuscitation equipment is immediately available
7. ASA-specified monitors are applied I.V. access, sedation, and oxygen used as indicated
8. Aseptic technique is utilized (hand hygiene, mask, sterile gloves)
9. Time Out is performed before needle insertion for each block site

This checklist is available as an application from iTunes and Google Play, and is available at **www.asra.com/page/150/asra-apps**.

While very useful, this checklist does not specify what should occur in the Time Out. Very specifically, every regional analgesia or pain procedure must have a Time Out performed (and ideally documented formally). The Time Out should include a team member other than the one performing the block and should verify the location of the surgery. Ideally this verification will cross-reference the surgeon's mark with the consent and the patient's knowledge. Any inconsistency requires a halt until the discrepancy is resolved. As noted in the ASRA checklist, a separate Time Out needs to be performed prior to each specific block performed, as there are multiple reports of the femoral block performed on the correct site, but the accompanying sciatic block performed on the wrong side.

If the regional anesthesia procedure is performed by a team other than the O.R. team, formal communication should occur between the O.R. and block teams before and after the block, including the site and type of block to be performed, single shot versus catheter, test dose, and volume and type of anesthetic injected.

Every institution must require that the pre-block protocol and Time Out be done correctly each and every time. Perhaps most important, every physician involved in performing an invasive procedure on a patient should be keenly aware of the ease with which errors can be made. Being aware, they should always, prior to beginning, ask themselves, "Is today the day I join the ranks of those who have had a 'never' event?"

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