

[PR2-122] Usefulness of Beta-2-Transferrin in Detecting an Unforeseen Complication following Paravertebral Nerve Block

Weismueller T, Visoiu M

Children's Hospital of Pittsburgh , Pittsburgh, , PA, US

Continuous paravertebral nerve blockade (PVB) has been shown to provide effective pain control in the postoperative period with limited side effects(1). Here we present a case where we used beta-2 transferrin as a marker for paravertebral catheter (PVBC) placement into the subarachnoid space.

The patient is a 14-year-old girl with a history of severe developmental delay and previous gastrectomy who underwent exploratory laparotomy and bowel resection. T9 bilateral paravertebral nerve blockade was chosen for postoperative pain control. After the needle encountered the transverse process, it was withdrawn, redirected caudad, and introduced 1cm beyond the transverse process. 10ml of ropivacaine 0.2% were injected after negative aspiration for blood or cerebrospinal fluid (CSF). A catheter was advanced through the needle into the paravertebral space. Repeat aspiration through the catheter was negative. This procedure was repeated on the contralateral side without any complications. Both catheters were affixed to the skin and ropivacaine 0.2% at 5ml was started immediately. Intraoperatively, the patient had a few episodes of hypotension (lowest systolic BP 55 mmHg) that resolved with intravenous fluid administration and temporary suspension of the PVB infusion. Minimal intravenous amount of opioids was administered during surgery. At the end of surgery the anesthesia provider injected each catheter with 5ml of 0.2% ropivacaine. The patient was extubated and transferred to the postoperative anesthesia care unit (PACU). No motor or sensory deficits were observed. Vital signs were stable, oxygen saturations were at 100% on room air. As per PACU protocol, both PVBCs were aspirated to check for blood. Nothing was aspirated through the left PVBC but a total of 10 ml serosanguinous fluid was aspirated easily through the right PVBC. The aspirate was examined for protein, glucose and blood cells. Another sample was sent for a beta-2-transferrin-assay, a test that is known to have high sensitivity and specificity for CSF. The right PVB catheter was removed in PACU and continuous ropivacaine infusion was started via left PVBC in addition to nurse controlled analgesia with ketamine and hydromorphone. The mean Face, Legs, Activity, Cry, and Consolability Score was 1.2/10. On postoperative day 3 the left PVBC was removed. No complications were reported.

Among the differential diagnosis for positive aspiration we considered CSF, pleural, lymphatic fluid and local anesthetic accumulation in the PVB space. Due to contamination with blood, we were not able to confirm CSF within the aspirate. In addition beta-2-transferrin-assay was negative, making subarachnoid placement of the PVBC unlikely. Thus we considered ropivacaine accumulation in the PVB space. Unfortunately, we did not have an option to quantify ropivacaine in our sample. To our knowledge, this complication has not been reported previously after PVN blockade. Taken together the inability to evaluate the aspirate prompted us to remove the right PVNC immediately. A Beta-2-transferrin-assay may be a helpful test to diagnose subarachnoid placement of a PVNC.

1.Chelly Anesthesiology clinics. 2012;30(1):75-90

2.Haft et al. The Iowa orthopaedic journal. 2004;24:115-8.
