

[PR2-114] Use and outcomes of peripheral nerve catheters in children: a review of 1307 cases from the PRAN database

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**INTRODUCTION:** Serious complications after regional anesthesia are rare, so large sample sizes are necessary to accurately define their incidence. The Pediatric Regional Anesthesia Network (PRAN) is a multicenter effort to prospectively collect information about pediatric regional anesthetic techniques and complications.<sup>1</sup> Currently, PRAN has 18 sites, with over 60,000 blocks recorded. This abstract describes our experience with peripheral nerve catheters (PNC).

**METHODS:** All blocks were entered prospectively into the PRAN online database. Intraoperative and postoperative complications were recorded and classified by type and severity. Procedures and complications were audited for accuracy and completeness by the principal investigator at each site. Exact binomial 95% confidence intervals were calculated for some incidence rates.

**RESULTS:** There were 1,307 PNC placed between April 1, 2007, and December 31, 2011. Most (n = 1,117) were placed in lower extremities, while 112 were placed in upper extremities (Table 1). Most patients were 10 years and older; only 20 catheters were placed in infants, including 5 in neonates. Catheters were removed at a median of 3 (IQR 2,4) days.

Ultrasound guidance was used to place 92% of upper extremity and 73% of lower extremity catheters. This difference was primarily due to ultrasound use in only 10% of lumbar plexus catheters.

There were 247 adverse events reported in 231 patients, an overall rate of 18.9% (Table 1). The majority had no sequelae, requiring only a change in treatment, but 3 had sequelae lasting < 3 months. No deep infection, long-term sequelae, or deaths were reported (95% CI 0-3:1,000). 20 superficial infections were reported in 11 patients (1.5%, 95% CI 8-22:1000), including 8 who had multiple catheters placed. There were 4 transient neurologic problems. There were 14 (1.1%, 95% CI 6-18:1000) vascular punctures. In 7 instances, block placement was abandoned and in another 7 the block was classified as “failed” based on inadequate postoperative analgesia, resulting in an overall failure rate of 1.1%.

The most common postoperative adverse event, reported in 140 (10.7%) cases, was a catheter problem (e.g. occlusion, dislodgement). The incidence was similar in upper and lower extremity catheters.

**DISCUSSION:** No severe complications and effective postoperative analgesia was seen in this cohort of peripheral nerve catheters in children. However, a larger sample size is necessary to obtain an accurate risk assessment. Adverse event rates compare favorably with neuraxial techniques at the same centers, in agreement with other large audits.<sup>2,3</sup> Catheter problems are common, yet minor in severity, and efforts should focus on improving techniques for securing catheters.

#### References:

1. Polaner, et al. *Anesth Analg* 2012; 115:1353-64
2. Dadure C, et al. *Can J Anesth* 2009; 56:843-50
3. Ganesh A, et al. *Anesth Analg* 2007;105:1234-42

Table 1. Adverse Events by Catheter Location

	Number	Adverse Events (%) <sup>a</sup>
<b>Upper Extremity</b>		
Interscalene	29	13 (44.8)
Supraclavicular	29	4 (13.8)
Infraclavicular	43	6 (14)
Axillary	8	1 (12.5)
Other	3	1 (33)
Total	112	25 (22.3)
<b>Lower Extremity</b>		
Lumbar Plexus	267	50 (18.7)
Fascia Iliaca	12	1 (8.5)
Femoral	344	68 (19.8)
Sciatic	291	61 (20.9)
Popliteal	152	20 (13.2)
Other	51	16 (36.4)
Total	1117	216 (19.3)
<b>Truncal/Other</b>		
Intercostal	1	0
Ilioinguinal	5	0
Paravertebral	13	2 (15.4)
Other	59	4 (6.8)
Total	78	6 (7.7)
<b>All Catheters</b>	<b>1307</b>	<b>247 (18.9)</b>

a – Listed as percentage of total number of each specific block