

## Evaluation of StatLock®-epidural as an Aid for Securing Indwelling Epidural Catheters

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**Introduction:** Continuous epidural analgesia is one of the most effective forms of pain relief in all age groups. In order to maintain its efficacy, it is important to have a reliable catheter fixation technique. Migration of epidural catheters can lead to block failure, infection, or injection of local anesthetic directly into the subdural, subarachnoid or intravascular space. StatLock®-Epidural (Venetec International Inc.) is a device designed specifically to secure epidural catheters. The aim of our study was to establish the effectiveness and safety of the StatLock® device for securing epidural catheters in the pediatric population.

**Methods:** After institutional approval, children who had epidural catheters inserted for perioperative analgesia were recruited into the study. Periflex Braun closed tip three holed epidural catheters were inserted in all subjects. Those with insertion sites that could not be assessed post-operatively were excluded from the study. The StatLock® device was used as recommended by the manufacturer to secure all catheters. Subject demographics, epidural insertion site and catheter level at the skin were collected at the time of catheter insertion. The level of the catheter at the skin (to the nearest 0.5 cm) and complications data were collected daily by the acute pain service as long as the catheter remained in-situ; date of catheter removal was also recorded. Data were analyzed using SPSS software, version 11.5.

**Results:** A total of 51 children were recruited into the study (30 males, 21 females) with a mean age of  $110.86 \pm 59.6$  months and mean weight of  $33.6 \pm 17.8$  kg. Twenty-nine of 51 (56.9%) catheters migrated. Of these, 34.5 % migrated inward while 65.5 % migrated outward. See Table 1 for details of migration at each level.

**Table 1**

	Lumbar N=35	Thoracic N=10	Caudal N=6
<b>Movement</b>			
In	8 (22.9%)	2 (20%)	0
None	14 (40%)	4 (40%)	4 (66.7%)
Out	13 (37.1%)	4 (40%)	2 (33.4%)
<b>Mean cm move</b>			
In	0.8 (0.5 to 1.5)	1.0 (no range)	0
Out	1.5 (0.5 to 4.0)	1.3 (0.5 to 2.0)	.75 (0.5 to 1.0)
<b>Mean cm in epidural space</b>	$4.6 \pm 1.8$	$5.0 \pm 1.1$	$9.5 \pm .7$

There were 3 cases of catheter kinking which led to complete occlusion. Removing the catheter from the StatLock® device relieved 2 of the cases. The other catheter had to be removed and reinserted because the kinking was under the skin at the epidural insertion site. Two subjects had patchy blocks. No complaints of discomfort, skin irritation or pruritus were reported around the StatLock® sites.

**Discussion:** Catheter migration after conventional fixation (catheter looping with Tegaderm®) has been reported to range from 43 – 54%.<sup>1,2</sup> In our study, 56.9% of catheters migrated. We observed a higher number of catheters migrating outwards compared to inward. None of the catheters that migrated inward resulted in a puncture of the dura or vessels. Nineteen subjects had outward catheter migration. Of these, 2 had a patchy block which was easily remedied with simple supplemental analgesics.

**Conclusion:** In this pediatric population, the catheter migration rate with StatLock® was comparable to previous reports in the adult population. This migration did not lead to block failures or other complications.

### References:

1. Clark, M.X. et al., Anaesthesia 2001
2. Phillips, D.C. et al., Anaesthesia 1987