

EPI/PNB stabilization - Literature review



Literature Review

Literature review of **March 2020**
Version: **1.0**

Bedal literature review of the impact of stabilization devices for Epidural catheters and peripheral nerve blocks.

Advantages of EPI/PNB stabilization

Catheter stabilization is recognized increasingly as an important intervention in reducing complications of phlebitis, infection, catheter migration, and catheter dislodgment¹.

Epidural catheter migration is a recognized problem during labor analgesia², with movement after insertion a cause of inadequate analgesia³.

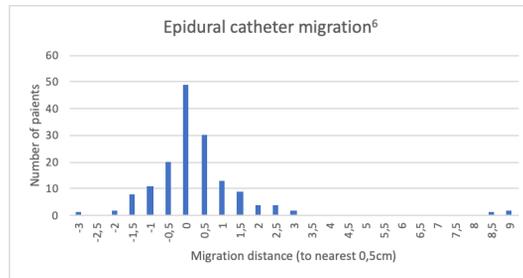


Fig 1: Migration observed in 153 epidural catheter placements

The ideal method?

An ideal method of fixing catheters would encompass⁵:

- Optimal security of the catheter
- Ease of inspection
- Maintenance of sterility
- Maintain efficacy after exposure to fluids

Type of patients⁶

- There is a significant correlation between outward migration and Body Mass Index (BMI)
- Obese patients with deep epidural space have a tendency to outward migration
- Thinner subjects with a shallow epidural space have a tendency for inward migration

Migration of epidural catheters⁴

Comparison of epidural catheter migration with a standard dressing versus a fixation device.

Migration of epidural catheter	Standard dressing	Fixation device
Inward migration %	18,4%	0%
Outward migration %	26,5%	10,5%
Total migration of catheter	45%	11%

Devices

This literature review focusses on Epidural catheters and Peripheral Nerve Blocks (PNB)



Epidural catheter



Peripheral Nerve Block (PNB)

Complications

Outward migration

Outward migration can lead to dislodgement, retraction into the soft tissue of the back and failure of analgesia⁴.

Outward migration



Inward migration

Inward migration leads to the possibility of intravascular, subdural or subarachnoid cannulation⁴.

Inward migration



Failed epidural block

All cases of failed epidural block occurred in patients whose epidural catheter migrated outward by 2,5cm or more⁶.

Failed block



References

1. Gorski, L. (2007). Infusion nursing standard of practice. *Journal of Infusion Nursing*, 30(1), 20-21.
2. Phillips DC, Macdonald R. Epidural catheter migration during labour. *Anaesthesia* 1987;42:661-3.
3. Crosby ET. Epidural catheter migration during labour: a hypothesis for inadequate analgesia. *Can J Anaesth* 1990;37:789-93.
4. Chow, L., Wahba, R., Shing, M. et al. Epidural catheter migration during labour — A comparison between standard versus Epi-Guard fixation. *Can J Anesth* 55, 4719641-4719642 (2008).
5. Burns, S.M., Cowan, C.M. et al. Intrapartum epidural catheter migration: a comparative study of three dressing applications. *BJA* 86 (4): 565-7 (2001).
6. Bishton I.M., Martin P.H. Factors influencing epidural catheter migration. *Anaesthesia*, Vol 47, P 610-612. (1992).