

Accepted Manuscript

Vertebral spread of epidural boluses with different pump flow rates in a porcine model

M. Oliver, S. Strowbridge, R. Mistry, E. Romagnoli, V. Skelton

PII: S0959-289X(16)30072-3

DOI: <http://dx.doi.org/10.1016/j.ijoa.2016.09.002>

Reference: YIJOA 2494

To appear in: *International Journal of Obstetric Anesthesia*

Accepted Date: 2 September 2016



Please cite this article as: Oliver, M., Strowbridge, S., Mistry, R., Romagnoli, E., Skelton, V., Vertebral spread of epidural boluses with different pump flow rates in a porcine model, *International Journal of Obstetric Anesthesia* (2016), doi: <http://dx.doi.org/10.1016/j.ijoa.2016.09.002>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

IJOA 16-00104

CORRESPONDENCE

Vertebral spread of epidural boluses with different pump flow rates in a porcine model

A recent study by Mowat et al. described the spread of dye solutions in the porcine epidural space when comparing a manual bolus against that delivered by an epidural pump.¹ This raises important clinical questions when attempting to deliver optimal labour analgesia. We conducted a similar study using cadaveric porcine spines, administering the local anaesthetic (LA) regimen used on our labour ward. We hypothesised that a pump bolus delivery at a higher flow rate would produce greater spread of LA. We also examined whether there was a significant difference between our existing Gemstar® pumps (Hospira, Maidenhead, Berkshire, UK) (maximum flow rate 125 mL/h) and the newer generation of Cadd®-Solis pumps (Smiths Medical, Ashford, Kent, UK) (maximum flow rate 500 mL/h) and CME BodyGuard® pumps (CME Medical, Blackpool, Lancashire, UK) (maximum flow rate 1000 mL/h).

Porcine spines have similarities with the human spine. Vertebral body size, spinal canal dimensions including length are similar,² and epidural insertion has a similar feel,³ although any cadaveric study incurs some limitation due to post mortem tissue degradation. There are also no dynamic indicators that are seen in a living animal which may help identify subdural and intravascular placement.

Local ethics approval was sought but not required. Eight fresh cadaveric pig spines were obtained from local butchers (“Whites” breed, aged 24 weeks). Specimens were made available after the head, neck and tails were removed. The end of the vertebral spine was ‘plugged’ to ensure epidural space integrity at the base of the spine. With the spine in a fixed, upright position, a 16-gauge Portex® epidural catheter (Smiths Medical, Ashford, Kent, UK) was inserted by the same operator 4 cm into the porcine L5–6 interspace using loss of resistance to saline. A 20 mL manual bolus of 0.1% bupivacaine with methylene blue dye was administered to mimic the initial test dose given on labour ward and to check integrity of the epidural space. In common with our labour ward practice, after waiting 30 min the epidural catheter was attached to either a GemStar®, Cadd®-Solis or a BodyGuard epidural pump and a further 8 mL bolus of 0.1% bupivacaine containing black dye was delivered. The spines were immediately dissected and the ascent of black dye from the level of insertion was recorded.

Download English Version:

<https://daneshyari.com/en/article/5582238>

Download Persian Version:

<https://daneshyari.com/article/5582238>

[Daneshyari.com](https://daneshyari.com)