

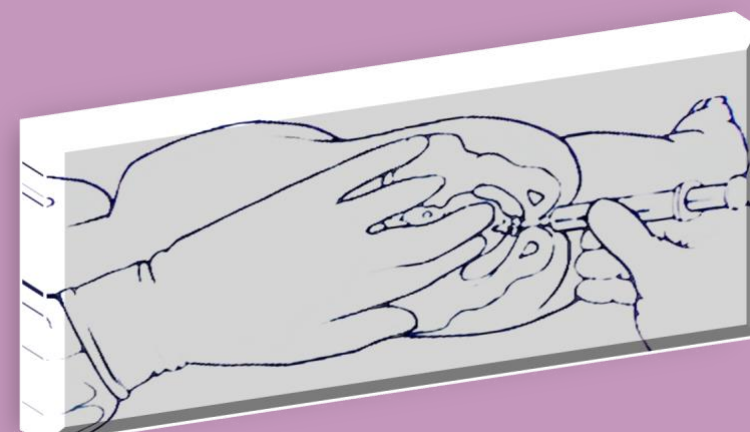
CAUDAL EXTRADURAL ANAESTHESIA - WHAT'S NEW?

INTRODUCTION

- In 2008 the first Association of Paediatric Anaesthetists (APA) sponsored online survey was undertaken to determine the practice of caudal extradural blockade in paediatric anaesthesia¹.
- 13 years on we have conducted the first repeat survey of its kind to determine whether practice has changed.
- Furthermore, we have expanded the survey to quantify ultrasound practice and dosing of local anaesthetics.

METHODS

- Based on the 2008 survey a new questionnaire was designed and piloted locally prior to being distributed (via email) to members of the Association of Paediatric Anaesthetists of Great Britain and Ireland (APAGBI).
- Data was collected on Microsoft forms over an 8-week period, and the results were analysed using Microsoft Excel.



RESULTS

1050 emails were distributed.
370 members completed the survey with a response rate of 35%. This compares to 366 responses out of 600 (61%) in 2008.

The majority of anaesthetists (67.3%) perform < 5 caudals per month whilst 9% perform > 10 a month.

In 2008 36.9% of respondents performed < 5 caudals a month, whilst 22.9% of respondents performed > 10 caudals a month.

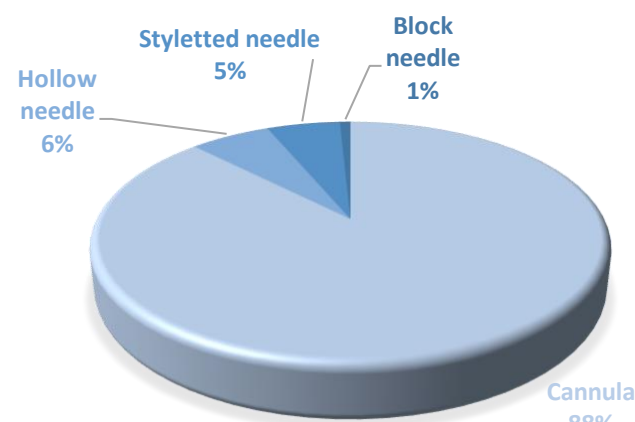
Asepsis for 'single shot' caudal

Aseptic precaution	% of responses 2008	% of responses 2021
Aseptic non touch technique	15.19%	74.9%
Sterile gloves	74.03%	81.9%
Chlorhexidine	Not available	93.5%

The most popular strength of chlorhexidine is 0.5% with 68.2% of respondents using it.

51.35% of respondents work exclusively in paediatric anaesthesia.

Sharps device used to access extradural space



22 G is the most popular gauge

with 97.9% of respondents using it for their caudal anaesthetic. In 2008 71% of anaesthetists used 22 G devices.

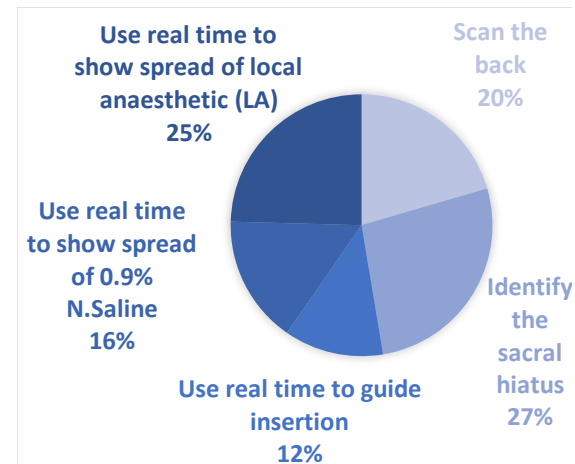
In 2008 31% of anaesthetists used hollow/ stylet needles to access the extradural space. This has dropped to 11.9% in 2021. In contrast cannula use has increased from 69.7% to 88%.

84.6% of respondents use the landmark technique to locate the sacral hiatus whilst 13.8% use both ultrasound and landmark technique. In 2008 7% used ultrasound in their practice.

When using ultrasound 64.9% of respondents use the sagittal plane to demonstrate the spread of local anaesthetic whilst 24.6% use both sagittal and transverse planes.

(please click on links (underlined) to access videos of ultrasound use in practice)

Ultrasound usage to perform extradural blockade



- 65.2% of anaesthetists use levobupivacaine as their local anaesthetic. In 2008 this was 54.1%.

- Bupivacaine use has decreased from 56.3% in 2008 to 45.9%.

0.25% is the most widely used concentration of local anaesthetic.

36% use the Armitage regime to calculate local anaesthetic dose.

48.6% of respondents exceed 2mg/kg or 0.8mls/kg when calculating local anaesthetic dose.

69.2% of respondents use analgesic adjuncts in their caudal injection. Clonidine use has increased from 60.8% to 98.4%, whilst opioid use has decreased from 26.1% to 2.7%.

24.9% of respondents use epidural catheters. This in contrast to 43% of anaesthetists in 2008.

The majority of anaesthetists (46.7%) leave epidural catheters in for 24-36 hours. This was also the case in 2008 (39%).

98.9% of anaesthetists use sterile gloves/gown/mask for asepsis for epidural catheter insertion. This has increased from 91% in 2008. 75% use chlorhexidine.

Of those who use chlorhexidine for epidural catheter insertion 75% use 0.5%.

DISCUSSION

- Fewer caudals are being performed per month compared to 2008. This may be related to a shift in case distribution from district general hospitals (bearing in mind that 48.6% of respondents do not provide exclusive paediatric anaesthesia), possible deskilling, or alternative neuraxial and regional anaesthetic techniques.
- A large proportion of anaesthetists use above the maximum recommended dose of local anaesthetic².
- Ultrasound use for caudals has almost doubled over the past 13 years. However, the majority of respondents still favour the use of landmark technique, even though this method has been published as being unreliable and inaccurate in neonates and infants³.

CONCLUSION

- Overall, there is a trend towards safer neuraxial blockade when performing caudals in children (use of levobupivacaine, adherence to asepsis, use of 0.5% chlorhexidine, and marked reduction in the use of hollow and stylet needles).
- However, the above maximum recommended doses of local anaesthetic is common and surprisingly only 13.8% of anaesthetists surveyed use ultrasound to guide caudal blockade.
- Further work should focus on i) success rates of caudal anaesthesia- landmark versus ultrasound-guided ii) any reported adverse events or lack thereof when using above recommended toxic doses of local anaesthetic via this route and iii) the preferential use of alternative regional anaesthetic techniques.

References

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