

## A Study on Caudal Epidural Block in Children

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### DESCRIPTION

In the field of paediatric anaesthesia, caudal anaesthesia is likely the most regularly used block. It's usually simple to use and has a low risk of side effects, and is particularly effective for surgeries below the umbilicus (Dalens and Hasnaoui). The duration of effective analgesia is much longer than one may assume based on the typical duration of action of a local anaesthetic alone. In a study comparing 0.25 percent bupivacaine with and without epinephrine, researchers discovered that adding epinephrine significantly prolonged analgesia, and that prolonged analgesia was linked to both younger age and a lower surgical site.

As measured by the time to first need for supplemental analgesia, the duration of analgesia ranged from 5 hours (inguinal surgery, older than 11 years) to 23 hours (penoscrotal surgery, 1 to 5 years old). Analgesia lasted at least 8 hours in a study of caudal blocking for analgesia after clubfoot surgery. Caudal block side effects in children are uncommon. Urinary retention does not occur in the following caudal block with local anaesthetic and no central neuraxis opioids, according to multiple investigations. In most cases, a caudal block is performed following general anaesthetic induction in infants and children.

Caudal anaesthesia complications include risks associated with the block itself, risks associated with the injection of local anaesthetic, and adverse effects associated with the drugs employed. The needle could be unintentionally inserted into the

intravascular space, the subarachnoid space, or the sacral marrow while doing a caudal block. The use of a short-beveled needle should reduce the incidence of intravascular injection, and a test dosage should disclose if the needle is intravascular or in the vascular marrow. Hypotension caused by centrally injected local anaesthetic is not a common side effect of caudal or neuraxial regional anaesthesia in children, unlike it is in adults. Hypotension is rarely seen in children under the age of five, even when there is no intravascular volume loading prior to the administration of a central blocker. This could be due to an immature sympathetic nervous system or the fact that the lower extremities do not supply a sufficient volume for venous pooling in relation to overall body size. A study of pulmonary Doppler flow found that during caudal anaesthesia, the pulmonary flow velocity changes, likely due to an increase in pulmonary artery resistance.

The authors concluded that caudal epidural anaesthesia is not indicated in children with pulmonary hypertension since the change could be due to local anaesthetic-induced vasoconstriction. Although urinary retention is a risk, it is not a common side effect in single-shot caudal anaesthetic. Fisher and colleagues looked at the postoperative voiding interval in children who had bupivacaine caudal anaesthesia with and without epinephrine, as well as ilioinguinal hypo gastric nerve blocks. There was no significant difference in the time to micturition between these groups, according to the researchers.

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