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بالرسالة صفحات
لم ترد بالأصل

COMPARISON OF THE EFFECTS OF CAUDAL BUPIVACAINE AND A MIXTURE OF BOTH BUPIVACAINE AND MIDAZOLAM IN PAEDIATRIC SURGERY

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by

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Chapter I

INTRODUCTION

INTRODUCTION

Historical Review :

Caudal analgesia in paediatrics was introduced by Compbell (1933)[1] He used it [illegible] children aged [illegible] Then caudal block was not used till 1962, when Spiegel[2] descriped its use in 124 operations on children aged 2 days to 14 years. He descriped it as being safe and simple.

Since this report, caudal analgesia in paediatrics has become wide spread. Several studies have descriped the indications for caudal analgesia, the level of analgesia, the recommended doses and the pharmacokinetics of local anaesthetics used. Also the advantages and the disadvantages of the techinque were descriped[3].

Indications for caudal bockade[4,5,6] :-

Caudal analgesia is used to provide intraoperative and postoperative analgesia for lower abdominal operations as hernia repair, appendectomies, orchidopexy, hydrocolectomy, orthopedic procedures on the lower limbs and genitourinary procedures as circumcision and correction of hypospedius

Contraindications for caudal bockade :-

a) **Absolute :-**

1. Refusal by the patient's parents.
2. Skin infection at the puncture site.
3. Bacteraemia .
4. Severe hypovolemia (shock).
5. Coagulopathy .

b) **Relative :-**

1. Existing neuropathy .
2. Asprin use preoperatively.
3. Subcutaneous minidose heparine.
4. Resistant surgeon .
5. Lesions as myelomeningocoele[7].

Complications of caudal analgesia :-

1. Bleeding with haematoma formation.
2. Infection .

3. Permanent neurological damage estimated at 1 in 200000[8].

4. Total spinal block .

5. Intraosseus injection with rapid increase in plasma concentration of local anaesthetic .

6. Intra vascular injection resulting in convulsions in conscious patient .

7. Motor blockade of the urinary bladder resulting in delay in voiding.[9]

8. Accidental injection of pelvic viscera particularly in very young children who have soft bones. This can be identified if urine or more commonly faeculent material is aspirated from the needle before injection.

9. Motor blockade of the limbs resulting in inability to stand unaided after surgery for a period of two hours.[9]

Anatomy :-

The sacrum is triangular in shape with its apex below articulating with coccyx and the base above having median and lateral portions. The sacrum is composed of 5 fused vertebrae. The median part of the base represents the body of the first sacral vertebra and articulates with the corresponding surface of the body of the fifth lumbar vertebra. The lateral portions are called the alae, representing fused costal and transverse elements. The anterior surface is concave and ridged at the sites of fusion between the five sacral vertebrae. Lateral to the ridges are the large anterior sacral foramina through which the anterior primary rami of the first four sacral nerves pass.[10] The posterior surface is convex and in the midline there is a bony ridge called the median sacral crest with three or four rudimentary spinous processes. Failure of fusion of the lamina of the fifth sacral vertebra resulted in a deficiency of the posterior wall called the sacral hiatus. It is triangular in shape with its apex at the spine of the fourth sacral vertebra. The lateral margins of the space has a prominence called the sacral cornu which represents the inferior articular process of the fifth sacral vertebra. The base of the hiatus is the superior surface of the coccyx.[10] The posterior sacrococcygeal membrane is attached to the bony margin and fills in the hiatus. There are four pairs of posterior sacral foramina corresponding with the anterior ones. The sacral canal is triangular and contains the continuation

of the epidural space and the dural sac. The epidural space contains the sacral and coccygeal nerve roots, filum terminale and the continuation of the epidural venous plexus. There may be fibrous bands in the sacral epidural space which divide it into loculi that prevent the spread of solutions, and these may account for occasional incomplete analgesia.[11]

The sacrum at birth is similar to that of adults but differs in being partially ossified. The ossification centers of the vertebral bodies appear between the 10th and 20th weeks of gestation while those of the vertebral arches appear between the 24th and 32nd weeks. The vertebral arches become completely ossified and unite together and with vertebral bodies by the age of 8 years. Thus the sacrum is cartilagenous in children and easily traversed by sharp needles leading to failure of block.[12] The tip of the spinal cord is at L3 at birth and doesn't assume the adult's position till the end of the 1st year of life.

At birth, the dural sac ends at S3 S4 levels. The adult level S2 is not reached before the 2nd year of life.[7]

During early childhood, the epidural fat is loosly packed and gelatinous. The resultant texture of tissue in the epidural space progresses to a tightly packed fibrous structure by early adulthood. This difference in texture may allow a greater spread of a given volume in the young child in comparison to the old child or adult.[13]