

Title : SERUM BUPIVACAINE DURING PENILE BLOCK IN CHILDREN

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Bupivacaine penile block requires moderate anesthetic volumes in children (1). Bupivacaine toxicity depends on drug serum levels and is likely enhanced by adjunction of lidocaine (2, 3). In the present work, total bupivacaine serum is determined when block is performed with either plain bupivacaine (B) or a lidocaine-bupivacaine mixture (LB).

PATIENTS AND METHODS

The study was approved by the local ethical committee and informed parental consent was obtained. Twelve unpremedicated boys aged 5 to 10 years, ASA status I, undergoing elective circumcision were randomly assigned to both groups. A basal anesthesia with halothane in a 1:1 O₂:N₂O mixture was performed. After venous cannulation, penile block was performed with 2 paramedian injections of 0.1 ml.kg⁻¹ plain 0.25% B in group I and 1% L - 0.25% B in equal parts in group II. Inhalation anesthesia was stopped at the end of surgery. Blood samples were taken before block (C) and 5, 10, 20, 30, 60, 90 and 120 minutes after block was performed. Serum was then frozen at -20° C until determination of total bupivacaine was performed with a gas chromatograph equipped with a nitrogen specific detector. Comparisons between groups at every time for serum bupivacaine were performed with a two way analysis of variance and where significant with a Student's paired t-test. P < 0.05 is considered significant.

RESULTS

They are expressed as mean ± SD

	GROUP I	GROUP II
AGE	5.5	5.84
years	± 1.84	± 2.48
WEIGHT	19.75	21.33
kgs	± 6.01	± 6.86

Demographic differences are not statistically significant.

SERUM BUPIVACAINE (mcg.ml ⁻¹)		
TIME (mn)	GROUP I	GROUP II
5 **	0.15 ± 0.08	0.0375 ± 0.0206
10 ***	0.22 ± 0.099	0.0367 ± 0.0273
20 ***	0.26 ± 0.101	0.053 ± 0.0197
30 ***	0.23 ± 0.088	0.065 ± 0.0234
60 **	0.17 ± 0.042	0.068 ± 0.0496
90 *	0.113 ± 0.045	0.040 ± 0.073
120	0.046 ± 0.019	0.02 ± 0.014

Differences between groups :

* p < 0.05 , ** p < 0.01 , *** p < 0.001

DISCUSSION

In both groups, serum bupivacaine concentrations are above admitted toxic levels (3, 4). Lidocaine delays peak bupivacaine concentration. In LB group, this peak is less than a half of the B group peak, suggesting a "protective" effect of lidocaine toward bupivacaine toxicity. Thus LB association is safe for penile block.

REFERENCES

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