Relationship between Minimum Local Anaesthetic Dose of intrathecal ropivacaine 0.75% and Gestational Age in Caesarean Delivery.

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Background and aims

The relation between gestational age and Minimum Local Anaesthetic Dose (MLAD) in caesarean delivery (CD) has been poorly determined in obstetric patients. The objective of this study was to describe the dose-response curve of ropivacaine when given intrathecally during combined spinal-epidural (CSE) anaesthesia, in relation with weeks of gestation.

Methods

After Ethics Committee approval, we randomly assigned 72 parturients, ASA I or II, scheduled for CD according to gestational age: group A (<32 weeks), group B (32-38 weeks) and group C (>38 weeks). A CSE technique (26-gauge pencil point/16-gauge Tuohy) was performed in the left lateral position. The epidural space was identified at L₂₋₃ using a midline approach and a loss-of-resistance to air technique. Intrathecal doses of 0.75% ropivacaine were determined according to the Dixon and Massey up-and-down method [1], with an initial dose of 15 mg (2 ml) and steps of 0.375 mg (0.05 ml). Fifteen mcg of fentanyl was added in the solution. An ineffective dose was defined as a VAPS>20mm, no spread of dermatomal level of block up to T4 and duration of anaesthesia <60min after injection. The estimation of ED50 enabled us to determine MLAD with 95% confidence intervals (CI).

Demographic data	mean (SD)		
	Group A	Group B	Group C
	<32 wks	32-38 wks	>38 wks
Age (mean SD), (yrs)	32,0 (5,8)	30,6 (6,0)	30,8 (4,9)
Height,(cm)	163,9 (6,9)	161,6 (18,6)	162,2 (5,5)
Weight before labour,(kgr)	66,8 (16,7)	66,3 (15,2)	61,0 (11,2)
Weight on labour,(kgr)	77,1 (16,5)	77,0 (16,7)	73,8 (11,8)
Gestational age, (wks) ¹	29,9 (1,7)	34,8 (1,5)	38,2 (2,2)

¹ P<0.001 between Group A and B, Group B and C, Group A and C

Results

Parturient characteristics were similar between groups. The calculated ED50 and 95% confidence interval values were as follows: Group A: 15.4 mg (14.5-16.3 mg); Group B: 14.5 mg (14.0-15.1 mg); Group C: 13.5 mg (10.9-16.1 mg).

Conclusions

Gestational age is inversely related to the local anaesthetic dose.

References

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