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PLASMA LIDOCAINE LEVELS FOLLOWING AIRWAY TOPICALISATION FOR PAEDIATRIC MICROLARYNGOBRONCHOSCOPY: LID STUDY

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Introduction and Aims

A dose of 5mg/kg lidocaine is considered appropriate for paediatric airway topicalisation. Existing literature suggests younger children are susceptible to toxic lidocaine plasma levels and achieve this at a faster rate (1-4).

Methods

Data was collected prospectively over 18 months at Royal Manchester Children's Hospital. Children aged 0-8 years undergoing elective diagnostic or therapeutic airway endoscopy were included within the study. The primary outcome looked to ascertain peak plasma lidocaine levels following airway topicalisation. Standardised 2% lidocaine was used for airway topicalisation. Dose varied depending upon practitioner usual practice. Venous blood sampling occurred at 5, 10, 15 and 20 minutes post administration and plasma lidocaine levels (ng/ml) analysed. Any clinical adverse events to include laryngospasm, coughing, desaturation and evidence of local anaesthetic toxicity were recorded.

Results

A significant relationship exists between higher peak plasma levels and ages <18 months ($p=0.00973$). Strong linear correlation exists between weight and age for our cohort ($r=0.88$). Higher peak plasma lidocaine levels occur with total dose volumes between 2 and 3mls of 2% lidocaine local anaesthetic ($p=0.03$) compared with <2ml total dose volumes. Data suggests a potential relationship of lower weights achieving higher peak plasma levels ($p=0.0516$). Reduced IQR variation of peak plasma lidocaine levels exists when lidocaine dosing is <5mg/kg.

Discussion and Conclusions

Age and total dose volume of topicalised lidocaine have a significant relationship with plasma lidocaine levels. A dose of 5mg/kg topicalised lidocaine for paediatric airway endoscopy is safe and provides good operating conditions. Lower patient weights trend toward higher peak lidocaine plasma concentrations and require further investigation.

References

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