Dexmedetomidine: the answer for difficult cases?

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BACKGROUND

Deep sedation or general anesthesia (GA) with benzodiazepines, barbiturates or propofol may cause respiratory depression and abolition of airway protective reflexes.

Dexmedetomidine (α_2 selective-agonist) - Sedative, anxiolytic and non-respiratory depressant properties

Good alternative for children with **high risk of airway collapse**

CLINICAL CASE

- ✓ 18 months male, 13Kg, ASA 3, laryngomalacia suspected;
- ✓ PROPOSED PROCEDURE: Cranioencephalic and neuroaxis MRI
- ✓ History of macrocephaly, delayed psychomotor development, kyphoscoliosis and history of recurrent respiratory infections.
- Administration of midazolam bolus 0.05mg/kg and dexmedetomidine 2 μ /kg in 10 minutes → score 4 of the Ramsay sedation scale was reached.
- **Dexmedetomidine** perfusion was started at 1 μ /kg/h.
- Extra bolus administration of midazolam 0.05mg/kg and ketamine 1mg/g.
- Maintained spontaneous ventilation and hemodynamic stability throughout the procedure.
- Discharge to home after recovery without intercurrents.

DISCUSSION

- The use of **dexmedetomidine** in children is not FDA approved, however its use in pediatrics has been described in the literature.
- Sedative drug that does not cause respiratory depression → attractive in children with greater risk in airway approach.
- Mason KP et al. describe an effective dexmedetomidine protocol 2-3 μ g/kg iv followed by na infusion up to 2 μ g/kg/h (plus adjuvant sedative drugs bolus when necessary) → bradycardia, hypotension and sinus arrhythmias were described with these doses.
- Sedation is described in **combination** with dexmedetomidine and ketamine with adequate levels of sedation, ↓ potential for adverse effects.

Synergistic sedative effect with opposite effects at cardiovascular level, appearing to be the key to maintaining spontaneous ventilation preserving hemodynamic stability.

LEARNING POINTS

- **Sedation in remote locations** is allways a challenge (specially in high risk children in airway management).

DEXMEDETOMIDINE – potential drug of choice in those situations

References:

- Tamman T. Comparison of the efficacy of dexmedetomidine, ketamine and a mixture of both for pediatric MRI sedation. Egyptian Journal of Anaesthesia. 2013; 29:241-246
- Mahmoud M, Mason KP. Dexmedetomidine: review, update and future considerations of paediatric perioperative and periprocedural applications and limitations. British Journal of Anaesthesia. 2015; 171-82