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THE USE OF DEXMEDETOMIDINE FOR PAEDIATRIC SEDATION IN A DISTRICT GENERAL HOSPITAL

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Description

A 14 year old with autism and pathological demand avoidance syndrome was listed for dental extractions under general anaesthesia. His underlying behavioural background had led to previous failed attempts in a neighbouring trust and a request for subsequent attempts elsewhere. He underwent a consultant led perioperative assessment and was referred to our Reasonable Adjustments Pathway. A careful perioperative plan was put in place.

On the day of surgery, despite planning, he refused all preoperative medication. The nursing team worked with him, and over time he accepted oral dexmedetomidine (4 mcg/kg) in water, as he associated juice with midazolam on the previous attempt. After an hour he was transferred to the anaesthetic room where he underwent a successful gas induction. Dental extractions were carried out and on emergence from anaesthesia he remained calm. He was discharge home 2 hours later with no further complications and a happy mother!

Discussion

Dexmedetomidine is an α_2 -receptor agonist and has been described as a preoperative sedative in children. We use it orally (4-5mcg/kg) and intranasally (1-2mcg/kg) with onset times of 45-60 and 15-30 minutes respectively. It is expensive (£71/200mcg vial) when compared to clonidine (£0.80/150mcg vial) or midazolam (£45/10mg prefilled syringe).

It was originally trialled within our adult critical care as an alternative sedative and therefore was already on our formulary, avoiding the need for a business case.

Our preoperative sedation guidance describes its use as a single agent or in combination with other agents. We have found that not only does it provide an excellent sedation profile for induction of anaesthesia, it also provides superb conditions for emergence and recovery from anaesthesia.

As a single agent we have found onset time for successful facilitation of anaesthesia to be over 60 minutes when taken orally and 30-45 minutes intra-nasally. When used orally in combination with midazolam it allows a larger window for successful anxiolysis (30-90 minutes). Noticeably, our experience suggests an excellent profile on emergence from anaesthesia. We use it intravenously intraoperatively (0.5 mcg/kg) to facilitate smooth emergence. We have experienced no critical events and found it to cause no cardiac or respiratory side effects.

Its use has been expanded to general paediatrics, for children undergoing procedures (ie echocardiography). On the paediatric ward we replicate our preoperative sedation dosing as a single agent.

Dexmedetomidine is not a silver bullet, but a useful part of our armoury for managing children requiring anxiolysis prior to surgery. We have found that it can be used on its own or in combination with other sedatives. It has increased our anxiolytic window so facilitated efficiency in running lists,

improved emergence profiles and subsequently those reattending for further procedures. It is a useful tool for other paediatric specialities.

References:

Mahmoud, M. and Mason, K. (2015). Dexmedetomidine: review, update, and future considerations of paediatric perioperative and periprocedural applications and limitations. *British Journal of Anaesthesia*, 115(2), pp.171-182.

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