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INTRANASAL DEXMEDETOMIDINE FOR PAEDIATRIC MRI SEDATION

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Background/Context

Buckinghamshire Healthcare NHS trust have introduced a new policy for MRI sedation using intranasal dexmedetomidine. This has now become the preferred agent for sedation in children over the age of 1. Our aim was to evaluate the success of dexmedetomidine.

Problem

The paediatricians were experiencing a high failure rate (36%) with traditional agents (chloral hydrate and midazolam), and as anaesthetists we were having huge technical difficulties administering general anaesthetics in the unventilated antechamber of the MRI suite during Covid-19.

Strategy for change

Following discussions with a couple of national centres who use dexmedetomidine intravenously for sedation, and evidence from the literature regarding its intranasal benefits, we gained pharmacy approval and introduced a policy for paediatricians and nurses to administer intranasal dexmedetomidine in October 2021. A prospective observational study tracked our usage of dexmedetomidine and looked at patient data, timings and reasons for failure. Nursing colleagues filled in audit proformas which were filed in the electronic patient record. These were reviewed and analysed by anaesthetists and paediatricians.

Measure of improvement

A review of the cases after 6 months, and a further review after 12 months demonstrated increasing success from 76% to 82% as nursing familiarity and confidence improved. The average time from sedation to scan was 34 minutes, average scan time was 29 minutes, and average total sedation time was 1hr 42 minutes. Failures were predominantly due to the child waking on transfer into the MRI scanner. A high proportion of failures were children under 2 years of age.

One child had a profound bradycardia and was admitted overnight for observation, another child slept for a protracted time and required treatment for hypoglycaemia (BM 2.4mmol/L) but was discharged later the same day.

Lessons learnt

Nursing feedback was highly positive, commenting on the ease and speed of administration, knowledge that full dose had been given and minimal distress for the child with the intranasal medication (similar to nasal flu vaccine).

Changes after the first 6 months of its usage included adjusting the timing of the transfer between the ward and the MRI suite and more attention to low lighting and reduced noise levels to encourage the child to sleep.

Message for others

Dexmedetomidine is an excellent agent for sedation. It is easy to administer intranasally and can be used safely by paediatricians and paediatric nurses for the majority of short MRI scans requiring sedation in children over the age of 1 year.

References

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