ID: 439

TITLE: PROPOFOL FOR ENDOTRACHEAL INTUBATION IN NEONATES CAUSES A DOSE-DEPENDENT PROFOUND AND PROTRACTED DECREASE IN BLOOD PRESSURE

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CONTENT:

Premedication minimizes the adverse physiological events that accompany endotracheal intubation and increases success rates. Therefore, premedication should always be administered before nonemergency endotracheal intubation in neonates. The ideal premedication strategy should be simple to administer, provide good intubating conditions, have a rapid onset of action and short duration, and no adverse effects. In this regard, propofol is considered one of the acceptable options. Results of previous studies have raised concerns about the hypotensive effect of propofol. Aim of this study was to analyze the effect of different propofol doses on blood pressure in neonates.

A propofol dose-finding study (NEOPROP-2) was previously performed to determine age-specific effective and safe propofol doses for (preterm) neonates. Newborn infants who participated in this study were included in the current post-hoc analyses if they received a propofol starting dose of 1.0, 1.5 or 2.0 mg/kg. Mean blood pressure (MBP) was measured invasively if an indwelling arterial catheter was present or noninvasively by an appropriately sized cuff. MBP data from 5 minutes before until 60 minutes after the start of propofol infusion were collected. Outcome measure was the change in MBP in the first hour after the start of propofol infusion compared to baseline in the 3 dosing groups.

Propofol starting doses of 1.0, 1.5 and 2.0 mg/kg were administered to 30, 23 and 26 neonates respectively. Effective sedation was reached significantly more often in the 2.0 mg/kg dosing group (86%), compared to the 1.5 mg/kg (23%; p < 0.001) and 1.0 mg/kg (4%; p < 0.001) dosing groups. The incidence of hypotension in the 1.0, 1.5 and 2.0 mg/kg dosing groups was comparable (63%, 52% and 62%). Figure 1 shows the absolute changes in MBP compared to baseline at different time intervals after the start of propofol infusion for the 3 dosing groups. MBP decreased in all 3 groups compared to baseline and was not completely restored 60 minutes after start of the propofol infusion. The decrease in MBP was most pronounced in the 2.0 mg/kg dosing group. Correction for volume resuscitation and extra propofol doses yielded almost the same results.

Propofol as premedication for endotracheal intubation causes a dose dependent profound decline in MBP. The MBP decline is mainly dependent on the starting dose, and not on the cumulative administered propofol dose. Caution with the use of propofol as premedication for endotracheal intubation in neonates is warranted. Starting low and adjusting the dose according to an appropriate sedative effect seems the safest strategy.

IMAGES:
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COI: None declared
**ID:** 918  
**TITLE:** INTRAVENOUS DEXMEDETOMIDINE FOR SEDATION IN TERM AND TERM-EQUIVALENT PREMATURE NEWBORN UNDERGOING MRI. RESEARCH REPORT.  
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**CONTENT:**  
Dexmedetomidine has gained ground for the sedation of pediatric and adult patients. Dexmedetomidine is a highly selective adrenoceptor agonist and has several favorable features, including: a quite rapid onset of a sedated state mimicking natural (non-REM) sleep; anxiolysis; analgesia; and anesthesia-sparing effects; with no or minimal respiratory side effects. Its use in neonates have a special interest because of side effects related to other sedatives. Brain MRI is a crucial procedure in neonatology for term patients with hypoxic-ischemic encephalopathy or term equivalent ex-preterms with intraventricular hemorrhage or periventricular leukomalacia and its success needs a good sedation.

A single dose of Dexmedetomidine 1 µg/kg was administered iv in 10 min (and repeated at the same dose when movements occurred during the test) to 15 term or term-equivalent newborns (8 born at term and 7 preterm) just before undergoing a brain MRI for clinical reasons (HIE, IVH or PVL). The sedation status was measured with the N-PASS scale, the time points for measuring sedation with the N-PASS were: at the baseline; 10 minutes after stopping drug’s infusion; and after the newborn returned to the NICU. Vital parameters (SpO2, HR, RR, ABP) were recorded before the iv. administration, then every 5 min during the scan and up to 2 hours after completing the MRI. Data were analyzed with Kruskal Wallis test for one-way variance, and Fisher’s exact test was used to test the frequency comparison.

The median dose of Dexmedetomidine administered was 3 µg/kg (from 2- to 4). No motion artifacts were seen on the MRI scans obtained with a significant N-PASS score reduction after the administration of the drug up to NICU readmission (p <0.0001). Our population didn’t show any significant variation of vital parameters. Blood pressure wasn’t significantly modified during the exam. We noticed a slight tendency to heart rate and oxygen saturation reduction without respiratory rate reduction, both those changes are explicable with the expected sedative effect of Dexmedetomined. In no case these parameters changes were clinically significant, without any medical intervention needed. Allowing to say that we experienced no side effects.

Dexmedetomidine seems safe and effective for use in performing MRI in term and term-equivalent premature newborn, showing no short-term side effects and avoiding neuro-apoptosis induced by other sedatives. Its use deserves a larger observational study to confirm this conclusion and identify all its possible applications. End-tidal CO2 is a possible implementation to better understand if the slight SpO2 reduction is related to an increasing CO2.

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