Epidural morphine-induced hypothermia in a pediatric patient: a case report

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Introduction

Perioperative hypothermia is a common phenomenon with a wide differential diagnosis.

Hypothermia has been described after subarachnoid and epidural opioid administration, mainly in obstetrics. There are no case reports about epidural morphine-induced hypothermia.

We describe a case of epidural morphine-induced hypothermia in pediatrics.

Case report:

10y female, 22kg, ASA III
chromosomopathy (47 XX +r(2)/46XX8469)
microcephaly
epilepsy
scoliosis
delayed growth development

Scheduled for a bilateral femoral wedge osteotomy.

Anesthetic procedures were explained and a parental informed consent was obtained.

In the OR:

Room temperature of 21°C

Active warm with warming blankets started before induction

Monitoring according to ASA standards plus BIS

General anesthesia induction (fentanyl 3.4ug/kg, propofol 2,7mg/kg, rocuronium 0,45mg/kg)

Epidural catheter placed at L4-L5 level with ropivacaine 0.2% 0.2 ml/kg and morphine 0,1% 15ug/kg

Restrictive goal-directed fluid therapy. Maintenance with sevoflurane guided by BIS.

Hemodynamic and respiratory stability were maintained throughout the surgery

Core temperature progressively decreased from 35.9°C to 33.3°C

120min of surgery: 2nd bolus of ropivacaine 0.2%; Surgery lasted 180 minutes.

Recovery room:

02 8L/min + epidural perfusion of ropivacaine 0.15% 0.2ml/kg/h + active warming

1h later: tympanic temp. of 33.2°C and a RASS score of -3

Naloxone 40ug IV was administrated

She became arousable, shivering started and her body temp. started to increase

3h later she was discharged to the ward with a tympanic temp. of 35.9°C

Discussion:

Epidural local anesthetics and intravenous opioids both decrease the core temperature that triggers shivering.

The postoperative hypothermia in our patient may be related to the cephalad spread of epidural opioid to reach the level of opioid receptors in thermoregulatory center of the hypothalamus, causing an altered response to a temperature decrease and suppression of shivering thermogenesis. This can be corrected with administration of naloxone.