

BIS pediatric sensor can cause blisters in small children

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To the Editor:

We report two small children presenting blisters at the location where a bispectral index (BIS) pediatric sensor (Aspect Medical Systems, Newton, MA, USA) was attached for a short period. Case 1: Intracardiac repair for ventricular septal defect was scheduled for a 3-month-old female infant. General anesthesia was induced by intravenous infusion of midazolam 0.5 mg and fentanyl 5 µg. Orotracheal intubation was performed with neuromuscular blockade by intravenous infusion of vecuronium, 0.5 mg. A BIS pediatric sensor was attached to the forehead after induction of anesthesia in routine fashion. Anesthesia was maintained using sevoflurane and fentanyl. The surgery was carried out for 4 h uneventfully. After the surgery, blisters were noted at the location where the adhesive part around the central electrode of the sensor was attached. An ointment containing steroid was applied, and the blisters healed without a scar within 1 week. Case 2: Left modified Blalock–Taussig operation for tetralogy of Fallot was scheduled for a 2-month-old female infant. General anesthesia was induced by inhalation of sevoflurane. Orotracheal intubation was performed with neuromuscular blockade by intravenous infusion of rocuronium, 5 mg. The BIS pediatric sensor was attached to the forehead after induction of

anesthesia in routine fashion. Anesthesia was maintained using a continuous infusion of midazolam and fentanyl. The surgery was completed in 2 h uneventfully. After the surgery, blisters at the location where the adhesive part around the central electrode of sensor was attached were noted (Fig. 1). An ointment containing steroid was applied, and the blisters healed without a scar within 2 weeks.

The central electrode of the sensor has been reported to cause skin lesions [1]. However, blisters were limited to the location where the adhesive part around the central electrode was attached in our cases. Because the central electrode of the pediatric sensor is relatively thick in size compared with that of the adult sensor, the adhesive part resistant to pulling on the infant's skin might contribute to blister formation when the central electrode of the sensor bulged out. In general, the skin is highly sensitive to irritation in small children. Moreover, hemodynamic derangement during surgery for



Fig. 1 Blisters at the location where the adhesive part around the central electrode of the bispectral index (BIS) pediatric sensor was attached

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congenital heart disease might affect skin circulation, contributing to blister formation.

In summary, the BIS pediatric sensor can cause blisters in small children. Extra caution should be taken when this sensor is used in small children, even for a short period.

Reference

1. Hemmerling TM. BIS sensor electrodes can cause skin lesions: case report. *Anesth Analg.* 2004;98:1811–2.