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Contact dermatitis with the Bispectral index, ™ Quarto Covidien sensor

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Dear Editor,

Depth of anaesthesia monitoring has become more popular since the increased use of TIVA (Total Intravenous Anaesthesia) and the recommendations of NAP 5 (National audit Project, Royal College of Anaesthetists, UK). We would like to present a case where the BIS sensor caused a reversible skin lesion in a teenager patient undergoing surgery of 150 min to make the anaesthesiologists aware of the potential adverse effects of the Zipprep® technology. BIS QUARTO is based on Zipprep™ technology and includes conductive ink, gel and sponges. Zipprep technology helps clear away the first layer of the epidermis exposing the inner, more electrically conductive layer of skin. The EEG signal is then carried through these traces to the BIS™ monitor which consists of four electrodes and is placed on the forehead.

A 15-year-old boy presented for dental extractions under general anaesthesia with the background of developmental delay and had limited verbal communication skills. Anaesthesia was induced using O2, N2O, and sevoflurane inhalation technique along with Standard AAGBI monitoring in place. A cannula inserted and anaesthesia converted to TIVA and the sevoflurane and N2O were discontinued. Airway was secured with a 6.5 cuffed endotracheal tube. BIS electrodes were applied, he was positioned and the pressure areas were carefully padded. Propofol and remifentanil were titrated using BIS to maintain a reading between 40 - 55 and monitoring the waveform in real time.

The surgery lasted 2.5 hours and was uneventful. On removing the BIS electrodes, markings were noted corresponding to the areas of the application. They were well demarcated, erythematous, blanching, non-blistering and non-urticarial. Recovery was uneventful and there were no other signs of systemic allergic reaction. After the patient was transferred to the recovery room, the dermatologist was consulted, and the event explained to the patient parents. Dermatologists felt the marks were not typical of allergic contact dermatitis but more likely due to an irritant and pressure effect of the BIS monitor. They were optimistic that the marks will disappear over time and suggested follow-up. A follow up visit 3 weeks later revealed the near disappearance of the marks.

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Contact dermatitis related to anaesthesia can be caused by contaminants on face masks[1];prone position[2] , ECG electrodes [3] and however, the incidence is low. The clinical importance of these lesions is associated with the increased use of BIS monitoring with raising the chances of an occurrence. This Irritant Dermatitis, with results into increased pigmentation, can have serious cosmetic implications especially for teenagers.

Declarations of Conflicts of Interest:
None declared.

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