catecholamines. We indeed observed an increase in heart rate during tracheal intubation, which might be representative for catecholamine release.

This case series shows that propofol anaesthesia and tracheal intubation may be associated with an increase in interstitial cerebral metabolite levels, which is in contrast to the general paradigm of suppression of brain metabolism by general anaesthesia. Our findings warrant further investigation of the relation between anaesthesia induction as a stressful event and brain metabolism in larger patient studies, thereby contributing to further optimization of anaesthetic strategies.

Declaration of interest

None declared.

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Anaemia tolerance: bridging with intravenous ferric carboxymaltose in a patient with acute post-haemorrhagic anaemia

Editor—Perioperative anaemia has a high prevalence in surgical patients.1 Allogenic blood transfusion, although life-saving in severely bleeding patients, is associated with specific adverse effects which may ultimately lead to adverse outcome.2 Thus, alternative measures to restore physiological haemoglobin levels are appreciated.3 We report a case of treatment of posttraumatic anaemia i.v. ferric carboxymaltose (Verinject™) without blood transfusion. The 17-yr-old patient was involved in a motor vehicle accident and sustained left femoral shaft, right clavicular, and right metacarpal fractures. On admission, the patient had a haemoglobin concentration of initially 12.3 g dl⁻¹. After volume therapy and surgery, the haemoglobin was 5.0 g dl⁻¹ and on the second postoperative day was 4.2 g dl⁻¹. The patient and his mother refused blood transfusion. We decided to give 500 mg Verinject™. The patient was discharged from the intensive care unit on the third postoperative day (haemoglobin 5.3 g dl⁻¹) and left the hospital on the 19th postoperative day (haemoglobin 11.1 g dl⁻¹) (Fig.1).

Verinject™ has been investigated in patients with iron deficiency anaemia.4 5 Notably, the present case for the first time reports treatment with sole ferric carboxymaltose in a severely anaemic patient refusing allogenic blood transfusion. There were no signs of tissue hypoxia (lactate increase, ECG ST-elevation, etc.). Verinject™ proved to be effective, safe, and considerably quick in raising haemoglobin concentration in this young patient. We report this case to generate discussion6 of the possibilities of ferric carboxymaltose as an alternative, supplement, or both for allogenic blood transfusion in young patients.

Declaration of interest

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Fig 1 Course of anaemia.
Interference with BIS™ values from a forced-air warming device

Editor—Bispectral Index™ (BIS, Covidien®, USA) is a dimensionless number derived by processing EEG signals according to a proprietary algorithm. Since its introduction in the 1990s as a monitor designed to ‘measure’ the hypnotic state of a patient under anesthesia and possibly reduce the incidence of awareness and recall, there have been conflicting reports on whether its use actually reduces incidence of awareness.1 2 Nonetheless, it is used in many institutions. In spite of advances in BIS™ technology and improved artifact detection, there have been reports of interference leading to values inconsistent with the hypnotic state of the patient.3 We report a case of interference of BIS™ readings with a forced-air warming device. A 50-yr-old morbidly obese woman was undergoing a robotic laparoscopic hysterectomy. Standard ASA and neuromuscular monitoring was used. An upper body forced-air warming device (Bair Hugger™; Arizant HealthCare Inc., MN, USA) was applied to maintain core temperature. Anaesthesia was maintained with 50% oxygen with sevoflurane titrated in the range of 0.9–1.2 MAC (minimum alveolar concentration). Midway through the surgery, persistent hypertension unresponsive to boluses of esmolol and hydromorphone was noted. A BISTM monitor (A-2000 XP Platform™ series) applied at this point gave a value of 90–95 at 1.2 MAC of sevoflurane, which persisted at that range despite boluses of propofol. Signal quality index (SQI) was adequate with no visible artifacts on EEG trace; but there was significant facial EMG activity. Concurrent train-of-four monitor revealed no twitches. Fine vibratory movement of the plastic flap of the Bair Hugger™ covering the patient’s face was noted. Hypothesizing that these clinically inconsistent BIS™ values were artifactualy elevated as a result of mechanical interference, we interposed a small towel as a barrier between the plastic flap and BIS™ sensor and noted immediate decrease in EMG activity with BIS™ values dropping to 25–30, necessitating a reduction in sevoflurane concentration. Her haemodynamics stabilized with additional doses of esmolol and the rest of the operative course was uneventful. She denied any intraoperative recall on interview in the post-anaesthesia care unit.

BISTM™ is subject to interferences both pharmacological and non-pharmacological (mechanical/electrical).3 Electrocautery, pacers, endoscopic shoulder shaving systems, ENT positioning systems, and forced-air warming devices have been reported to cause interference.3–5 While some distort SQI and cause visible artifacts, other devices do not, making such detection challenging.3 Interference from forced-air warming devices has been reported with earlier versions of BISTM™ (BISTM A-1000™ and A-2000)5 but not the newer A-2000 XP version which incorporates an SQI and facial EMG bar to detect fidelity of signals. It seems likely that the interference resulted from transmission of mechanical vibration of the plastic flap of the warming device to the BISTM sensor on the forehead. This is supported by the observation that the BISTM™ and EMG readings immediately fell to clinically consistent values when these were separated. BISTM™ remains susceptible to interference despite technical advances and risks inadvertent anaesthetic overdose. BISTM™ values should be interpreted with caution in situations where they are inconsistent with clinical judgement.

Declaration of interest
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Nebulized magnesium for prevention of postoperative sore throat

Editor—Postoperative sore throat (POST) is a common complaint in the postoperative period after tracheal intubation...