

## Subclinical hypothyroidism: A cause for delayed recovery from anaesthesia?

Sir,

A 41-year-old female patient, diagnosed to have right sphenoid wing meningioma, was electively scheduled for right fronto-temporo-parietal craniotomy and excision. On preanaesthetic evaluation, she weighed 40 kg and had no comorbid illnesses. She was started on phenytoin 100 mg tid and intravenous dexamethasone 6 mg qid for 4 days which was continued on the morning of surgery. Her examination and routine investigations were within normal limits. Computed tomography (CT) scan showed 5.5 × 5.3 cm tumour with midline shift (8 mm).

Anaesthesia was induced with morphine 6 mg and thiopentone sodium 250 mg. Endotracheal intubation facilitated by pancuronium 6 mg was performed using a 7.5-mm ID cuffed oral endotracheal tube. Anaesthesia was maintained with nitrous oxide–oxygen and propofol infusion with added doses of pancuronium

and morphine when required. Propofol infusion was titrated to haemodynamic response. Mannitol 40 g (1 g/kg) was started at the start of skin incision and completed in 20 min for brain decompression. Surgery lasted 12 hours, during which the tumour was excised. The last dose of morphine was given 4 hours prior to the termination of surgery, the total dose being 10 mg. At the end of the surgery, after adequate breathing attempts were noticed, residual neuromuscular blockade was reversed with adequate doses of neostigmine and glycopyrrolate. Delayed awakening was noted which was attributed to hypothermia. In spite of adequate warming by wrapping the patient with warm blanket and blowing warm air, hypothermia persisted for 2 hours. Patient was shifted to postoperative unit on ventilatory support. Blood samples were sent for thyroid profile, electrolytes and arterial blood gas analysis. Blood sugar, electrolytes and blood gases were found to be normal. By exclusion, hypothyroidism was suspected and tab. l-thyroxine 0.1 mg was given via nasogastric tube to which the patient responded very well after 4 hours. The thyroid profile obtained later showed elevated thyroid stimulating hormone (TSH) confirming that it was a case of subclinical hypothyroidism, defined as elevation in TSH levels in patients with normal serum thyroxine levels. Rest of the hospital stay of the patient was uneventful.

Intraoperative fluid administration was with normal saline and ringer lactate used alternatively. Patient was haemodynamically stable throughout the procedure. Serum electrolytes, blood glucose and arterial blood gases were normal, negating hyponatraemia or metabolic causes as causative factors.

The context-sensitive half-life of propofol for infusions up to 8 hours is less than 40 minutes.<sup>[1]</sup> Propofol was tapered and stopped half an hour prior to termination of surgery. Last dose of morphine (2 mg) was given 4 hours before the dural closure. At the end of surgery, the pupils were normal in size, equal and reacting to light. The role of phenytoin in increasing the depth of anaesthesia has been mentioned in the literature, but only if taken for more than 7 days, and hence phenytoin being the cause of delayed recovery is unlikely.<sup>[2]</sup>

Nitrous oxide was stopped with the dural closure. This decreases chance of pneumocephalus contributing to delayed recovery.<sup>[3]</sup>

All the above causative agents may explain isolated delayed recovery, but they do not explain its

association with persistent hypothermia. This led us to search for other causes. Dramatic response of the patient to tab. l-thyroxine and the thyroid profile of patient guided us to the diagnosis in a retrospective manner. Subclinical hypothyroidism is more common than overt hypothyroidism, the worldwide prevalence of which ranges from 1 to 10%.<sup>[4]</sup> The highest age- and sex-specific rates are in women older than 60 years of age, approaching 20% in some reports.<sup>[5]</sup> This case highlights the importance of subclinical hypothyroidism being one of the probable causes of hypothermia and delayed recovery after exclusion of other causes.

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