Use of desflurane in a multiple sclerosis patient undergoing ophthalmic surgery: Discussing the individualized care

Sir,

Multiple sclerosis (MS) represents a constellation of symptoms due to chronic inflammation and demyelination of the brain and spinal cord. These symptoms exacerbate, remit, or progress.[1] Cognitive impairment is common in all courses of MS and is associated with increased interleukin-6 (IL-6) levels.[2] Surgery, anesthesia, pain, and fever/inflammation have been implicated for acute exacerbations.[1]

A 39-year-old Asian female (weight 60 kg), case of relapsing MS for past 14 years presented with rheumatogenous retinal detachment and vitritis (since 10 days) along with ipsilateral eye cataract. She was planned for phacoemulsification followed by pars plana vitrectomy, scleral buckling and internal tamponade in single sitting. Her other eye had no vision. She suffered multiple relapses and had received interferon, glatiramer. Last relapse was 2 months back for which she received methylprednisolone and baclofen. Currently, she was in incomplete remission and was wheelchair bound. Respiratory and autonomic system examination and laboratory investigations were normal. She was on oral prednisolone 60 mg OD.

General anesthesia with controlled ventilation was chosen due to expected long surgical time. Hydrocortisone 100 mg was given preinduction. Continuous cardiorespiratory monitoring, neuromuscular transmission, and temperature monitoring were initiated. After preoxygenation and preloading, anesthesia was induced with propofol (2 mg/kg) and fentanyl (1.5 µg/kg). Single dose atracurium 20 mg was sufficient for facilitating smooth tracheal intubation and muscle relaxation during entire surgery (3 h). Anesthesia was maintained with 5-6% desflurane in oxygen-nitrous oxide. Intraoperative course and extubation were uneventful. Paracetamol was administered for postoperative analgesia round the clock for a day. Elastic compression stockings were advised in the immediate postoperative period. Intraoperative findings confirmed
presence of retinal vasculitis, hence oral and topical steroids were continued in the postoperative period. No exacerbation of MS symptoms occurred in 2 months follow-up.

Perioperative care in MS patients poses challenges because of variable neurological involvement, concurrent long-term immunosuppression treatment, and risk of disease exacerbation. The effects of different anesthetics and anesthesia regimen in terms of rapid awakening with intact cognitive domain and protective immunomodulation have been studied. We used propofol as induction agent that has neuronal protective effect and antioxidant action. Rapid recovery, the benefit of propofol could be jeopardized following prolonged or high-dose infusion.

High levels of IL-6 (cytokine) were correlated with low Mini-mental State Examination scores in MS patients representing impaired cognitive domain. Desflurane is known for rapid recovery and is associated with lesser rise in IL-6 levels. We hypothesized that acute increase in the levels of inflammatory mediators like IL-6 is a possible common factor among all causes of acute exacerbations; hence, desflurane may offer added advantage in presence of appropriate management of other risk factors.

In conclusion, this case underlines the safety of general anesthesia with desflurane in MS patients and warrants carefully individualized perioperative management.

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Conflicts of interest
There are no conflicts of interest.

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