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Introduction

Multiple Sclerosis (MS) is a disease of temperate climate. It is rare amongst Asian and African races. Its overall incidence is 0.1-0.4%[1]. MS is primarily a disease of young adults with the onset of symptoms between the ages of 15 and 40 years and often present with a single neurological deficit, usually via a single lesion (55%) in the optic nerve, brain stem and spinal cord[2]. The effect of surgery and anesthesia on the course of MS is controversial. Some reports indicate that symptoms of MS are exacerbated by anesthesia, particularly regional anesthesia. A relatively high proportion of patients with MS who receive spinal anesthesia do have an exacerbation of symptoms after surgery. It was suggested that demyelinated areas of the spinal cord might be more sensitive to the effects of local anesthetics[3,4]. However, there is no clear evidence that anesthesia, general or regional contributes to an exacerbation of the disease[2].

Case Report

Twenty one years old girl weighing 45 kg was scheduled for rotation flap in right trochanteric area due to bedsores. She was diagnosed as a case of multiple sclerosis two years back when she delivered a baby. Four days after delivery she developed progressive weakness in both lower limbs leading to complete quadriplegia over a period of one and a half year. Her initial symptoms were blurring of vision which progressed to complete loss of vision and generalized stiffness of whole body.
Her preoperative cardio pulmonary assessment was unremarkable. Laboratory investigations showed normocytic normochromic anaemia. MRI Brain scan showed multiple areas of demyelination in the centrum semiovale, bilateral basal ganglia, right cerebral peduncle and frontal white matter. EMG and nerve conduction studies were suggestive of a motor axonal neuropathy affecting lower limbs with minimal signs of acute denervation. Visual evoked potential showed bilateral pre chiasmatic optic pathways dysfunction. Brain stem auditory evoked potential was normal.
No pre-medication was given. Anaesthesia was induced with sodium thiopentone 5mg/Kg body weight. Atracurium was used for muscle relaxation and pethidine I mg/kg for analgesia. Anesthesia was maintained with isoflurance (N20/02 60:40). She remained stable throughout the procedure, surgery lasted for about two hours. Special consideration was given for temperature control which was kept between 34-35°C throughout. At the end of the procedure patient was reversed with atropine and neostigmine and shifted to the recovery room with stable vitals.
She was followed up and found to be stable with no postoperative deterioration in her symptoms. She was anaesthetized with the same technique twice for dressings without any complications and was discharged after a month.

Discussion

Patients with multiple sclerosis coming for surgery should be assessed thoroughly, regarding its onset, progression and relapse, so that post-operative complications could be interpreted. There is an increased tendency for platelets to aggregate, this may be relevant when the patient smokes or uses oral

contraceptives where there is an increased likehood of post-operative deep venous thrombosis. Prophylactic use of subcutaneous heparin is advisable[1]. There is an increased incidence of epilepsy in patients with MS. During examination, particular attention must be paid to the degree of paresis. Kyphoscoliosis may be present and detailed respiratory function testing is indicated if a severe degree of restrictive lung diseases is suspected. Examination of autonomic nervous system including response to valsalva maneuver is of particular importance since many of these patients may have labile autonomic nervous system[5]. Infections are relatively common, particularly UTI. All except the most urgent surgery should be postponed until the patient is free froni infection[1]. We did not use any benzodiazepi nes (d iazepam) are cholinergic agents should be avoided possibility of a rise in temperature[1]. Papaveretum, Scopolamine and promethazine have been used as premedication[6].
We used sodium thiopentone for induction. Its deleterious effect on the course of the disease has not been substantiated. Phillida has described eight anesthetics shared by three patients, they received sodium thiopentone on seven occasions. On no occasion was anesthesia and surgery followed by apparent worsening of the patient's condition[6]. Propofol also has been used without any exacerbation in symptoms[3]. We used atracurium for muscle relaxation. Hyperkalaemia with rise in potassium concentration upto 3 mmol/ liter has been reported in MS. The use of suxamethonium should therefore be avoided[1]. Patients with MS might also have defective neuromuscular transmission. Due to the disturbances of blood brain barrier, non-depolarizing muscle relaxant may enter CSF in large amount and can cause CMS symptoms even muscle fasc icu lation. Non-depolarizing relaxants should be used with the greatest caution and in the lowest appropriate dose. General anesthesia using muscle relaxants are likely to lead to difficulty with weaning from mechanical ventilation and a prolonged stay in the ICU. We used isoflurane; however there is no direct evidence that any of the currently used volatile anesthetics have deleterious effect on the course of the disease, it may be advisable to avoid enflurane and halothane. Autonomic dysfunction may exaggerate the hypotensive effects of volatile anesthetics. Acute arterial hypertension is known to impair the blood brain barrier and particularly in association with the use of halothane. We used N20 along with oxygen. It has been used without any sequelae[7]. The implication of N20 in neurological damage arises both from its role in the inhibition of vitamin B 12 and its known link with myelopathy and also in immune suppression. It is preferable to avoid N20 in MS except for short procedures[8]. We used pethidine for analgesia which proved safe without any sequelae.
Lumbar puncture may itself have little effect on the course of the disease but the opposite view is also held. In a recent review complications following spinal anesthesia were reported in 29 cases, 10 of which were in patients with MS1. However intrathecal diamorphine has been used successfully without any exacerbation in symptoms in MS[2]. Bader at el[9] reported that epidural anesthesia for child birth in patients with MS was not associated with a significantly higher incidence of relapses when compared with those patients who received local anesthetsia delivery. However, all women who experienced postpartum relapses received concentration of biipivacaine greater than 0.25%[9]. Monitoring should include ECG, NIBP, pulse oxymetry and special emphasis should be given to temperature and ET C02 monitoring. Temperature in our patient was between 34-35°C. Temperature regulation is critical in patient with MS. Even a slight increase of 0.5 degree in temperature can lead to the conduction block. Mild depression of bodytemperature by 0.7°C is known to cause transient improvement of the sign and symptoms. Respiratory muscle weakness and dysfunction may increase the likehood of the need for postoperative mechanical ventilation. Indeed an elevation of body temperature appears to be the normal response to all but the least traumatic surgical procedures. The prophylactic use of antipyretics post-operative may be of value[1]. In conclusion multiple sclerosis is a relatively common neurological disease but it is unlikely that any one anesthetist will have experience of enough patients to be able to draw valid conclusions as to which drugs are most likely to produce an exacerbation. The effect of

disease process on the safe conduct of anesthesia and in the choice of anesthetic agent to be used is important.

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