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SHORT COMMUNICATION

Post-Operative Delirium

Biju Pappachan[1] · **Raghav Agrawal**[2]

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Introduction

Post-operative delirium (POD) is an acute change in cognitive status characterized by fluctuating consciousness and is associated with high incidences of morbidity, high complication rates and long hospitalizations [1]. In hospitalized patients, 30–40% cases of delirium are thought to be preventable. Multimodal strategies have been used in an effort to counter delirium resulting from diverse causes such as neurotransmitter imbalance, neuro-inflammation, pain, infection, metabolic abnormalities and sleep disorders. Widely applicable therapeutic countermeasures for delirium have not yet been discovered [2].

Case Report

Seventy-year-old male patient reported to us after a road traffic accident in which he injured his left condyle. The fractured segment was displaced antero-medially and occlusion was deranged. Surgical reduction and fixation of the fractured segment was planned.

Patient was deemed fit for surgery after pre-operative assessment. Patient did not report of any substance abuse or any existing underlying medical conditions. Pre-operatively patient was given 1.2 g of amoxicillin–clavulanic acid, 8 mg dexamethasone and single dose of PPI.

Induction of anaesthesia and surgery was uneventful, but as reversal was given and patient was extubated, he initially responded abnormally with hyperactivity and incomprehensible speech. This progressed, he later developed frank signs of delirium. He continued to be hyperactive, irritable and disorientated.

Post-operatively also the blood pressure was on the higher side. But other vitals remained within normal limits; stat midazolam (1 mg) was administered.

The signs of delirium persisted for this patient continuously during the post-operative period; post-operative blood analysis showed hyponatremia and diminished alkaline phosphatase and other parameters were within normal limits; on the basis of these clinical and laboratory findings, patient was diagnosed as a case of post-operative delirium (POD). The patient was managed with haloperidol (2 mg) i.v. bolus dose, followed by 0.5 mg qid. Patient responded to the therapy adequately. After 2 days of treatment, he completely recovered, with full level of consciousness and orientation, and subsequently the patient was discharged.

Discussion

Delirium, defined by an acute change in consciousness, attention, cognition and perception, is caused by a general medical condition.

The incidence of post-operative delirium ranges in between 17 and 36.8% [1]. In view of such a high incidence, it may be imperative that, with every case where pre-operative dexamethasone is administered, a post-operative psychotic reaction should be anticipated. In patients who are being post-operatively ventilated, it may be

✉ Biju Pappachan
bijupappachan2121@gmail.com

[1] GDC Raipur, 572/10-47, Lane No-6, New Shanti Nagar, Raipur, CG, India

[2] GMC Rajnandgaon, Shri Ram Kripa, H.No. 82-83, Janta Bhawan Lane, Choubey Colony, Raipur, CG 492001, India

necessary to use restraints to prevent self-extubation and a pre-operative consent for the same would be required.

Post-operative delirium is commonly observed in elderly patients in the post-anesthesia care unit (PACU) and during the first 2–3 days following surgical procedures. This is an important clinical problem in the geriatric surgical patient; morbidity and mortality rates are significantly higher in patients who develop delirium. At the present time, the aetiology of delirium has not been precisely defined. However, studies suggest that inflammation related to the surgical stress response is an important contributing factor in inducing neuro-inflammation and subsequent cognitive dysfunction and delirium.

One small controlled study indeed suggested that post-operative administration of dexamethasone was associated with a reduced delirium prevalence [2]. It could also be argued, however, that dexamethasone increases the risk of delirium because delirium is a known complication of long-term and/or high-dose treatment with corticosteroids [3]. It is currently unknown whether dexamethasone will increase or decrease the incidence of post-operative delirium.

A multivariate analysis showed that older age, hypertension, low post-operative 0_2 saturation and decreased post-operative haemoglobin levels were risk factors for POD [4].

Independent correlates included age 70 years or older; self-reported alcohol abuse; poor cognitive status; poor functional status; markedly abnormal pre-operative serum sodium, potassium or glucose level; noncardiac thoracic surgery; and aortic aneurysm surgery, morphine pain control. Patients who developed delirium had higher rates of major complications, longer lengths of stay and higher rates of discharge to long-term care or rehabilitative facilities (5).

Lonergan et al. [4] found that both typical antipsychotics (haloperidol) and atypical antipsychotics (olanzapine, risperidone and quetiapine) were effective in treating delirium in their meta-analysis. These results were consistent with the meta-analysis which tested the role of antipsychotics on delirium prevention. Marcantonio [5] also found a positive role of quetiapine and olanzapine in treating delirium in critically ill patients. Only the study by Zhang et al. [6] showed that low-dose haloperidol reduced the incidence of delirium compared to placebo.

Older age and male gender were significant risk factors for post-operative delirium, when fentanyl was used for controlled analgesia POD was effectively prevented. There was a trend for post-operative delirium to be associated with extensive surgery. In those who had delirium, blood tests revealed that alkaline phosphatase, total protein, sodium, chlorine, red blood cell count, haemoglobin and haematocrit were significantly diminished after surgery. These results indicate that general condition is closely related to the onset of post-operative delirium and suggest that appropriate post-operative management can reduce the incidence of this complication [7].

Conclusion

The episodes of delirium can prolong the hospital stay [1] or may result in readmission [2] and increase the total cost for the patient. Early recognition and management with sedatives/antipsychotic drugs is crucial.

Post-operative delirium is preventable, and its incidence can be decreased by predicting these risk factors during the pre-operative and post-operative periods. Haloperidol prophylaxis may be used for these cases.

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