

Management Of Postoperative Delirium In A Head & Neck Cancer Patient

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Citation

H Khurana, G Goyal, R Jain, S Mishra, S Bhatnagar. *Management Of Postoperative Delirium In A Head & Neck Cancer Patient*. The Internet Journal of Anesthesiology. 2006 Volume 15 Number 1.

Abstract

Postoperative delirium is not an uncommon problem encountered in the intensive care unit especially in elderly patients. Its incidence varies from 10 to 60% in postoperative patients with orthopaedic, gynecological and cardiac procedures. Incidence in head and neck surgery patients with major reconstructions and image distortions may be much more due to the psycho-social issues involved. We encountered a case of delirium in such a patient which required a thorough reevaluation of perioperative conditions and the various means to manage it. The case study provided in this article offers an opportunity to apply concepts about delirium, polypharmacy, and pain management as they relate to the postoperative care of an older adult patient. Prevention, early diagnosis, understanding of physiology and pharmacology; and a very high degree of suspicion are a key to proper management.

INTRODUCTION

Delirium is common in hospitalized elderly patients and is associated with increased morbidity [1], length of stay in hospital and high dependency areas and a substantial financial burden[2]. The classic manifestations of this syndrome are impaired cognition and decreased ability to maintain attention [3] It is usually seen on the first or second postoperative day and symptoms are often worse at night.

Delirium (acute confusional state) is defined as an acute disorder of attention and cognition [4,5]. It is an abnormal mental state that included disorientation, combativeness, irritability and fear. Patients may have sensory misrepresentations or frank hallucinations. They may disconnect themselves from monitoring devices or even life support equipment and cause harm to themselves.

In oncology, delirium incidence ranges from 18% to 85% (6). Differences in diagnostic criteria, populations under study and methods of surveillance used probably account for this wide range. Exact etiology is not known but various predisposing factors of postoperative delirium are age (especially >70) (7), gender (females) (8), pre-existing pathologic states of the brain, low education level (9), depression, long surgery (10), blood loss (11), pain and recall during surgery, dyselektrolytemia and glucose (11,12). Intraoperative and postoperative hypoxia, hypocarbia and sepsis can also play some role in the development of postoperative

delirium. We are reporting a case of postoperative delirium in a elderly patient with head and neck cancer.

CASE HISTORY

A 70 year old female diagnosed a case of carcinoma right buccal mucosa with a history of 6 months was planned to undergo tumor removal and flap reconstruction. Her comorbidities were hypertension since 10 years controlled on Tab Enalapril 2.5 mg once a day; diabetes mellitus (type II) on Tab Glipizide 1 mg, Tab Pyoglitazone 15 mg and Tab metformin 500 mg daily; hypothyroidism on Tab Thyroxin 100 mcg daily. She was morbidly obese, her BMI being 40.

She never attended formal school and could only read enough for daily routine life. A mother of 2 sons and 1 daughter, all married with families, Her daily chores included attending religious discourses and living a solitary life of a widow.

She was a conscious oriented, calm and tranquil person with no history of depression, dementia, and mood disorders. A tobacco chewer for the last 40 years, she would get irritated if not provided with the same. There was no neurological deficit and higher mental functions were normal. There was history of dyspnea on exertion (NYHA II). ECG revealed no abnormality and echocardiography showed an ejection fraction of 55%, with no RWMA or clot.

She had no history of snoring while sleeping with mildly

restricted pulmonary function test. Her pre-operative hematological, biochemical and arterial blood gas analysis, blood sugar, blood pressure and thyroid profile were within normal limits. One day prior to surgery oral hypoglycemic were discontinued and she was switched over to IV insulin. She had a good night sleep. After an over night fasting Oral antihypertensives and thyroxin were given as usual doses with a sip of water in the morning of surgery. Premedication was done with inj. Morphine 5mg, inj. Phenargan 25mg, and inj. Glycopyrrolate 0.2mg intraglutealmuscular half hour prior to shifting to the operating theatre.

The patient was received calm and sedated in the operating theatre. Induction was uneventful and nasotracheal armored cuffed PVC tube was placed under fiberoptic guidance. She underwent right hemimandibulectomy with right modified radical neck dissection with right pectoralis major flap under general anesthesia. The duration of surgery was 5 hrs and patient remained hemodynamically stable throughout the procedure. She was reversed in the OR and shifted to ICU conscious and sedated on spontaneous ventilation with the naso-tracheal tube in situ according to the protocol of our institution. During that time she was kept sedated on intravenous morphine and midazolam infusion. Sedation was given for overnight and patient was extubated 2 hrs after stopping sedation. At that time patient fulfilled all the criteria's for extubation. Analgesia was given with inj Diclofenac 75mg i.m. 8 hourly thereafter.

On day 2 of ICU stay she remains hemodynamically stable and maintained saturation on oxygen through face mask at FiO_2 of 0.4 after extubation. Four hours after extubation she became agitated and restless with fluctuating levels of consciousness but responding to commands. Hemogram, biochemistry, arterial blood gas analysis, serum electrolytes and thyroid profile were normal at that time and blood sugar maintained on intravenous regular human insulin infusion.

Neurologist and psychiatrist opinion was taken and as per their advise intravenous inj. haloperidol 5 mg and inj. phenargan 50 mg was given stat. Patient became sedated and calm. After 8 to 10 hours patient again became restless and agitated and did not want to stay in the ICU and wanted to stay with her relatives. She was oriented and responded normally to verbal commands. There was risk of injury as she was pulling on surgical drains and intravenous lines so we decided to prolong her ICU stay to keep her under observation. Intravenous Haloperidol 5 mg and phenargan 50 mg was started twice daily keeping in view the hazard to the patient. She was kept in lowly lit noise free environment

with no audio-visual or undue stimulus. After checking for bowel sounds, hypoglycemics and thyroxin was started by nasogastric tube.

On day 3, as the patient remained sedated she was unable to maintain oxygen saturation primarily due to the oral edema at the surgical site she developed due to excessive movement and secondarily to cough and clear her secretions and subsequent risk of developing lung infection, a nasopharyngeal airway was inserted temporarily and oxygen was given after gently suctioning the pharynx till the time an elective tracheostomy was done under general anaesthesia next morning to secure and toilet her airways. The procedure and emergence from anesthesia was uneventful. CECT head and brain did not reveal any gross abnormality.

The patient was kept in the ICU and intravenous haloperidol 5mg 12 hourly was given for another 2 days. The patient remained sedated during this period and maintained oxygen saturation on oxygen (FiO_2 0.50) with intermittent ventilatory support. The family members were allowed at the patient's bed side daily morning and evening with the advice to talk about family wellbeing and calm the patient. Natural day light was allowed at her bed to encourage orientation.

On day 6, she was started on oral tab haloperidol 5 mg 12 hourly with oral tab Escitalopram 10 mg at bed time and by this time she could sit up in bed and move around with support.

She was subsequently shifted to her room on the seventh day with tracheostomy tube in situ which was removed a month after discharge to home. On follow up she was normal with no further such episodes.

DISCUSSION

It's important to understand the risk factors and incidence of Delirium for early diagnosis and treatment, because there are cumulative effects of various baseline vulnerability factors and precipitating factors for Delirium. Baseline vulnerability factors are defined as predisposing factors for Delirium present upon the admission. Precipitating factors are defined as noxious insults or hospitalization-related factors that contribute to Delirium (12).

In this case an elderly obese female, not well educated, widow living a solitary life, a tobacco chewer for over 40 years presents for a major surgery. She was having history of long standing hypertension, diabetes and hypothyroidism but controlled on medications.

Being elderly (especially >70yrs) (7) and female (8) are known risk factors to develop delirium. Obesity though not reported earlier as a risk factor per se does predispose to hypoventilation and lung complications/ infections (9) in the pooled secretions.

Though cardiac (13), thoracic (7) and knee replacement surgeries (14) are known risk factors a higher incidence of delirium is reported in cancer patients (15).

Here the female underwent a long duration (7) facial surgery with a pectoralis major flap which entails facial reconstruction and a long period after surgery during which verbal communication may not be possible. Further complicating the matters in this patient were her inability to communicate in writing due to low education status.

Blood pressure fluctuations, blood loss, serum electrolytes abnormalities (17) and arterial blood gas variations never attained alarming proportions. Blood sugar was always kept within a normal range with intravenous insulin preoperative, intraoperative and postoperatively.

Hyperthyroidism is known to cause delirium in postoperative period but here the patient was having hypothyroidism controlled on oral thyroxin, and did not require any dose adjustment in the preceding one month. Thyroid function test pre as well as one day postoperative was normal.

Drug cocktails should be avoided. Atropine, scopolamine and flurazepam should be used only if necessary, and the dose should be as low as possible. Opioids particularly meperidene and morphine have been implicated in studies by patient controlled analgesia route in a variety of surgeries ranging from hip, gynecological, breast reconstruction and abdominal surgeries (16,17,18,19). No study has been done in major head and face surgeries which in our view will have a much larger incidence due to the disfigurement and psychological issues involved.

Minimization of unnecessary light, noise and stimuli should be done. In one study (20) consistent implementation of these interventions resulted in a 40% reduction in the development of delirium. Involvement of their families can be helpful in reorienting and soothing delirious patients. Patients' family members in our case were encouraged to interact with the patient and educated about the patient's condition, with emphasis on the fact that it is a temporary phase (21).

Benzodiazepines and narcotics that are often used in the ICU

to treat "confusion" (delirium) actually worsen cognition and exacerbate the problem. (22)

The Society of Critical Care Medicine has recommended haloperidol for the treatment of delirium, though only few studies support its use. (23) Haloperidol is the most commonly prescribed drug for delirium in the cancer setting because of its low cardiovascular and anticholinergic effects (24).

Although Delirium can develop at any time during hospitalization, it typically presents early in the postoperative period. A good preoperative evaluation should include a formal cognitive assessment in patients at risk of developing Delirium. Delirium usually persists for hours to days and can fluctuate throughout the course of the day. In this case; patient developed symptoms on second postoperative day and resolved on medication by the sixth day. The first step in managing patients with delirium is early recognition of the complication. Then there should be efforts made to determine the underlying cause. Both prevention and treatment should focus on minimizing and/or eliminating predisposing and precipitating factors. Pain control should be a primary role but poly pharmacy should be avoided. A thorough review of a patient's medications should be done and any sedatives, analgesics, or anticholinergic drugs that can be discontinued or decreased in dosage should be evaluated.

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