

Geriatric Anesthesia

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Abstract

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Liver mass declines by almost 40% by the age of 80 years, there is modest reduction in metabolism of phase I drug and bile secretion with age. The effects of opioids, muscle relaxants metabolized by liver and other drugs cleared by hepatic metabolism are prolonged in elderly [4].

Geriatric people have a decline in nervous tissue mass, density of neurons, concentration of norepinephrine and dopamine receptors along with neuro-transmitters is also reduced. At 80 years of brain has typically lost 10% of its weight. Response time and learning is more difficult and above the age of 80 years, many patients have significant cognitive impairment. Requirement of both local and general

Urine analysis: Elderly patients have high chances of symptomatic bacteriuria and may have indwelling urinary catheters, therefore it is mandatory to get baseline urine routine microscopy done in them.

Chest X-ray: Chest X-ray is recommended in patients who have known cardiopulmonary disease and who are found to have abnormalities on systemic examination.

Electrocardiogram/Echocardiogram: Electrocardiogram/Echocardiogram is indicated in elderly patients with cardiac disease, associated risk factors/co-morbidities such as hypertension, diabetes, elevated cholesterol, triple vessel disease etc.

Options of Geriatric Anesthesia

Options available for anesthesia management include Monitored anesthesia care (MAC), Regional and General Anesthesia. Decision is based on the type and nature of surgery, patient's choice and patient's co-morbidities.

Monitored anesthesia care (MAC)

Sedation can be provided during local or regional anesthesia to increase patient's comfort for proposed surgery, helps overcome anxiety and prevents sympathetic surges. There is overall patient's

surgeries are amongst the commonly performed day care surgeries in them. Discharge criteria, Aldrette scores and PADS score apply same for them.

Analgesia

Elderly are particularly sensitive to opioid analgesics and their use in higher dosage should be avoided. One should carefully titrate the drug dosage effect relationship and include a prophylactic bowel softener such as docusate or stimulant laxative if these patients are on chronic opioid therapy for pain. Regional techniques for analgesia should be encouraged and advocated to improve pain control and improve patient's satisfaction scores. Peripheral nerve blocks are useful especially in orthopedic surgeries and provides better pain scores, reduced use of opioids, wakefulness and decrease side effects, better

return of gastrointestinal function, and overall reduced risk of cardiovascular complications.

Induction of anesthesia

Adequate pre-oxygenation is mandatory, followed by titrating the effect of anesthetic drugs to effect is required. ED 50 of inhalational anesthetic drugs falls linearly with age, concurrent administration of opioids, midazolam and induction agents such as Propofol and

Risk factors for PONV in elderly

Nausea and vomiting is amongst the most common complication of general anesthesia, and patients can be extremely nervous and anxious about the same in the preoperative period, and is also a causative factor for prolonged stay of patient in hospital, also poor patient's satisfaction in the post-operative anesthesia care unit. Risk factors of PONV should be assessed in all elderly patients, and those at moderate-high risk for PONV should receive prophylactic medications for the same. The anesthesiologists should be aware of post-operative

nausea-vomiting prophylactic and treatment strategies and should appropriately administer them weighing the potential risk and benefits of the drugs. Use of 5HT3 antagonists such as ondansetron should be avoided or used cautiously to avoid QT prolongation. Corticosteroids use should be avoided in patients at high risk of post-operative delirium. Transdermal scopolamine should be avoided as it has strong anticholinergic properties and increases the risk of delirium, confusion and constipation. Prochlorperazine is avoided to avoid anticholinergic side effects [6].

Procedure	Enhanced Recovery Protocol	Conventional Protocol (Key Differences)
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Table 3 Comparison of eras and conventional protocol.

Target fluid therapy

Generally fluid administration should take in account the physiology of ageing duration of surgery, use of anesthetics agents and

blood and third space losses. Appropriate use of intravenous fluids in elderly is important to avoid ill effects of fluid administration on already compromised physiological reserves of geriatric ill

Goal directed, or fluid restrictive strategies are preferred over fixed volume strategies to avoid volume overload [6].

Enhanced recovery after surgery and anesthesia in elderly

Enhanced recovery programs involve changes in every step of the patient care process, from the referral from primary care through to the post-operative phases and follow-up. Most of the evidence for ERPs comes from colorectal surgery, although these components apply

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- practices guideline from the american college of surgeons NSQIP and the American Geriatrics Society. *J Am Coll Surg* 222: 930-947.
7. Lassen K, Soop M, Nygren J, Cox PB, Hendry PO, et al. (2009) Consensus review of optimal perioperative care in colorectal surgery: Enhanced Recovery After Surgery (ERAS) Group recommendations. *Arch Surg* 144: 961-969