



## Guide To - Anaesthesia in Elderly

### KEYWORDS

Anesthesia, Elderly, Multi-Disciplinary Team

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### ABSTRACT

*Elderly person of 80 years of age and older presents a specific challenge to anesthetists, who needs to acquire and maintain skill and expertise in the management of such patients. Departments should have a lead clinician with an interest in the care of the elderly. Pre-operative assessment by Multi-Disciplinary Team, involving anesthetists, surgeons and physicians and members of other specialty, would help in better outcome in such patients. The availability of equipment's, such as active warming devices and anti-pressure sore apparatus, is mandatory for the elderly. Age does not obtund the perception of pain. Acute and chronic pain management teams should be available to treat the elderly. Prophylaxis for Thrombo embolic disease should initiated to prevent further complications.*

### Introduction

The incidence of morbidity and mortality is high in elderly patients. Age is not a disease, but it increases the chance for developing age related diseases. Inadequate preparation and evaluation is common in these days, in over work and over crowded hospitals, especially for emergency cases. In a review conducted for emergency procedures in the elderly patients, it was found that, incidence of correctable deficiencies in blood volume, electrolyte imbalance or oxygen delivery was demonstrated in 65% of the cases.

Recent studies show the mortality/ morbidity rates for fit, healthy elderly are not significantly higher than those for younger patients. Preoperative assessment should be done by a multi disciplinary team (MDT). It should ideally consist of anesthetists, surgeons, physicians, nurses, physiotherapists, occupational therapists, dieticians, speech and language therapists, pain specialists, stoma therapists, psychiatric and palliative care services. Their assessment and advice can improve the general outcome of surgery, also future quality of life.

### DEFINITION

People over 65 years of age have conventionally been regarded as elderly and this is still used as a social definition. For the purpose of this document the elderly are defined as over 80 years of age, based on physiological parameters. The older a patient is on presentation for surgery, the greater is their risk of morbidity and mortality.

### THE DECISION TO OPERATE OR NOT

A decision whether to operate should be made at a consultant level, in consultation with the Multi Disciplinary Team, family members and most importantly the patient. The procedure to be undertaken should improve the quality, or quantity of a patient's life. There is no place for heroic, yet futile surgery.

Appropriately trained staff using formal tests of cognitive function should only diagnose confused mental status. It is caused by sepsis, dehydration, over hydration electrolyte and or metabolic abnormalities, hypoxia or constipation. Many of these causes are reversible.

### PRE OPERATIVE ASSESMENT

A careful and detail pre-operative assessment of the pa-

tient is important, to achieve a positive outcome. Before taking detailed history, a mini mental state score is very helpful, primarily to assess reliability of information but secondarily it might prove very useful in the postoperative period.

Significant history can be elicited from relatives, careers, nurses. Old notes are a very useful source of information, especially old anesthetic charts.

Specific points in the history which are relevant should include:

1. Background of admission for surgery. For example, it is important to know whether the "fall" leading to a fractured neck of femur, was an accidental or it was a syncopal episode.
2. Co-existing medical conditions like ischemic heart disease, hypertension, COPD, stroke, arthritis, diabetes, dementia, Parkinson's, malnutrition, poly pharmacy and sensory impairment (visual/hearing loss common).
3. Gastro-esophageal reflux disease (GERD).
4. Medications- including dose, frequency, when they were started, and any recent changes. Long-term medications should be continued. Do not forget alcohol and cigarettes. Pay particular attention to steroids, beta-blockers, ACE inhibitors, diuretics, insulin or hypoglycemic agents and anticoagulants.

### Examination:

Measurement of blood pressure allows intra operative management of hypotension, and to maintain organ auto regulation peri operative.

Fluid balance, weight and nutrition are all important in the assessment.

Bowel prep or fractures may need fluid pre operatively.

Unrecognized pathology might be found, and be highly relevant, such as the systolic murmur of aortic stenosis.

If possible, walk the ward or stairs with the patient to assess "real-time" exercise tolerance.

**Investigations:**

An ECG, full blood count, urea, electrolytes and blood sugar estimation are required. Otherwise investigate as clinically indicated.

**INTRA OPERATIVE MANAGEMENT**

Multiple retrospective and prospective studies suggest that, no significant difference in outcome can be attributed to the use of any specific agent, and no clear and objective benefit can be demonstrated for using regional rather than general anesthesia. Technique should be compatible with patient's physical status and type of surgery.

**Specific Issues:**

1. Psychological preparation, appropriate pre medication, and patient is pre warmed
2. IV access is potentially more difficult in the elderly with dermatoporosis.
3. Routinely pre-oxygenate all patients.
4. With IV induction agents, arm-brain circulation time is often increased and doses can be reduced if given slowly. Ensure a free-flowing drip and have vasopressors to hand.
5. Airway maintenance may be more difficult / hazardous because of:
  - Osteoporotic mandibles
  - Nuisance/peg/loose teeth
  - Temporomandibular joint stiffness
  - Lax oropharyngeal muscle tone and edentulous jaws
  - Cervical spondylosis
  - Arthritis of atlanto-occipital joint
  - Sometimes it is best to leave dentures in place to provide support for facemask ventilation or laryngeal mask stability
6. There will be increased sensitivity to some agents such as volatile anesthetics, opioids, benzodiazepines, but reduced sensitivity for others, such as inotropes and vasopressors.
7. If available, consider using short acting agents such as desflurane or sevoflurane. The favorable low blood/gas and tissue/blood solubility coefficients should result in a more rapid arousal and possibly fewer critical events in the early recovery period.
8. Maintenance of normal body temperature is important.
9. Fluid management should be based upon assessment of preoperative hydration, intra operative losses, urine output, pulse, blood pressure, central venous pressure or even trans esophageal Doppler. Both over hydration and dehydration cause significant morbidity.
10. Meticulous positioning with appropriate padding is especially important, to prevent pressure sores. These may prolong hospital stay, result in subsequent morbidity or even cause death from sepsis. Catheterization risks include sepsis and confusion but might help prevent pressure areas by keeping tissues dry.

**Regional anesthesia v/s general anesthesia**

A Cochrane review of hip surgery looked at 17 trials (2567 pts) comparing General Anesthesia to Regional Anesthesia. It concluded that Regional Anesthesia might reduce mortality at 1 month but the long-term mortality remained unchanged.

Epidurals and spinals are technically more difficult in the elderly due to spondylosis, osteoarthritis and patient positioning

**Post-Operative Management**

1. **DVT Prophylaxis:** The risk of pulmonary thrombo-

embolism is significant in elderly patients. It is confounded by the nature of surgery, immobility and concurrent disease such as heart failure. Good hydration, early mobilization, anti thrombo-embolic stockings, low molecular weight / unfractionated heparin and calf compression devices would help prevent or decrease the risk of this phenomenon.

2. **Nutrition:** Good nutrition aids healing and recovery. Mortality from fractured neck of femur has been reduced with fine bore Neso Gastric feeding tube.
3. **Blood Sugar Monitoring:** There is increasing evidence to suggest that adequate glucose control improving patient outcome.
4. **Fluid Management:** Fluid imbalance is a major contributory factor in postoperative morbidity and mortality. Fluid prescription "should be accorded the same status as drug prescription" (AAGBI July 1998). Acute renal failure can account for up to 20% of postoperative deaths in the elderly. Monitor of urea and electrolytes regularly.
5. **Pain:** Pain charts should include regular pain and sedation scoring with nonverbal scores available. Assessment can be difficult due to cognitive impairment, dementia and aphasia. Patient's posture, facial expressions help non-verbal assessments. Intervention should be followed up with re-assessment. Paracetamol is good, safe analgesic with minimal side effects and should be charted regularly in almost all cases. NSAIDs is associated with risk of gastric bleeding at higher doses, long durations, concurrent steroids, and previous ulceration. Ibuprofen and diclofenac are generally safe. Intramuscular (IM) opioid is painful and has unpredictable effect. Oral opioids if tolerated are more reliable. Patients should be monitored for sedation, respiratory depression, nausea and vomiting, ileus, purities, urinary retention and confusion.
6. **Oxygen Therapy:** The elderly are unable to increase and maintain ventilation at high levels. Ventilatory muscle fatigue occurs early, but may not become apparent until 2-3 days post-operatively. There is reduced CNS responsiveness to hypoxia and hypercarbia, which is reduced further by opiates and anesthesia. The highest incidence of myocardial ischemia is on day 2 or 3 post-operatively. Oxygen therapy and closer monitoring in a high dependency area might be required.
7. **Rehabilitation:** Early mobilization, physiotherapy and occupational therapy improve post operative recovery.
8. **Cognition:** Elderly patients frequently experience deterioration in cognitive function in the postoperative period. The features of delirium include confusion, disorientation, restlessness, agitation, fear, hallucinations and delusions, altered psychomotor activity, fluctuating levels of consciousness and disturbed sleep wake cycles. Symptoms are worse at night. Acute delirium increases morbidity, delays recovery, and prolongs hospital stay.

Treatment is of underlying cause e.g. antibiotics for infection and oxygen if hypoxic. Haloperidol 2.5mg IV increased to 5mg PRN can be used to settle an agitated patient. Thiamine and diazepam might also be useful. Repeated orientation, familiar surroundings, family, sensory aids and reestablishing day-night cycles are useful "non medical" therapies.

**CONCLUSION**

Aging is a universal and progressive physiological phenomenon clinically characterized by degenerative change in both the structure and the functional capacity of organs

and tissues. In general, geriatric patients are more sensitive to anesthetic agents. Less medication is usually required to achieve a desired clinical effect, and drug effect is often prolonged. The most important outcome and overall objective of peri operative care of geriatric population, is to speed recovery and avoid functional decline.

An important principle must be kept in mind when dealing with an elderly patient: Aging involves a progressive loss of functional reserve in all organ systems, to variable extend. Compensation for age related changes is usually adequate, but limitation of physiological reserve is evident during times of stress such as the peri operative period.

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