



# **Anaesthesia and Peri-Operative Care of the Elderly**

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## **SECTION I - SUMMARY**

1. Elderly surgical patients of 80 years of age and older present a specific challenge to anaesthetists, who need 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.
2. The number of elderly patients is increasing and age should not be a bar to surgery. Recognition of this must be incorporated into service provision. Twenty-four hour recovery facilities, High Dependency Unit (HDU) and Intensive Therapy Unit (ITU) beds should be available at all hospitals for these patients.
3. Pre-operative assessment will benefit from cross-specialty advice involving anaesthetists, surgeons and physicians. The development of this team approach requires time and resources that must be recognised and provided by management.
4. The provision of certain intra-operative equipment, such as active warming devices and anti-pressure sore apparatus, is mandatory for the elderly and budgets must permit the purchase and replacement of such equipment for both theatres and wards.
5. Age does not obtund the perception of pain. Acute and chronic pain management teams should be aware of the particular problems in the treatment of the elderly.
6. The increase in time and resources that the elderly require, particularly with respect to higher nursing ratios in ward and recovery areas, must be recognised.
7. Thrombo-embolic disease is common in this age group and requires extra resources.

## **SECTION II - INTRODUCTION**

### **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 SIZE OF THE PROBLEM**

In the United Kingdom there are currently 2.4 million people over 80 years of age. By 2040, this number is expected to increase to 4.4 million [1]. It follows that there will be an ever increasing number of elderly patients presenting for surgery. Currently, the service provision for these patients is often inadequate and, hence, they are at a disproportionately greater risk of avoidable disability and death compared to younger, fitter patients. A recent study [2] showed that 10% of all elderly patients have clinically significant cognitive dysfunction at two years following abdominal surgery. It has been estimated that the ensuing disability has fiscal implications in the region of 39 billion pounds [3]. Facilities for the elderly surgical patient must, therefore, be organised to reflect the increase in overall numbers and to take into account the cost of potential long-term as well as short-term complications.



## **SECTION III - THE PROVISION OF A SAFE SERVICE**

It is of great importance that each department of anaesthesia has at least one consultant with a special interest in the care of the elderly. While all members of a department will be called upon to anaesthetise elderly patients, these 'team leaders' can act to promote interdisciplinary working and be a focus for specific concerns relating to care, staffing or equipment.

Elderly patients are often very suitable for day case care as this minimises the disorientation they can experience in the strange hospital environment. This type of care requires meticulous pre-operative assessment that will include detailed social appraisals as to the levels of home support and care available [4].

### **PRE-OPERATIVE CARE**

#### **Co-existing medical problems**

Careful pre-operative assessment is imperative to achieve a good outcome. Poor pre-operative assessment may negate the effort and skills of the operating department team. Most patients in the elderly age group will be ASA II or greater. The most common co-existing medical problems are of the cardiovascular system. The Anaesthesia Team [5] should be involved early to advise on the treatment of acute and chronic problems prior to surgery. It may be that surgery has to be delayed in order that pre-operative improvement in the patient's health can be effected. Therapeutic objectives should be realistic. Multidisciplinary teams should agree the peri-operative management and a consensus sought for the optimum time to proceed to surgery. The resources to provide this type of care must be recognised and provided by management.

A multidisciplinary team may include not only anaesthetists, surgeons, physicians and nurses, but many other healthcare professionals such as physiotherapists, dieticians, speech therapists, occupational therapists, acute and chronic pain specialists, stoma therapists and psychiatric services. Their advice and contribution may improve the outcome of surgery and the future quality of life.

#### **Confusional states in the elderly**

Only appropriately trained staff should make the diagnosis of dementia using formal tests of cognitive function. Confusional states in the elderly may be due to sepsis (for example, urinary tract infection) dehydration, overhydration, abnormal urea and electrolyte levels or hypoxia. All anaesthetists should be familiar with, and able to perform, simple tests of cognitive function such as the mini mental state examination or the abbreviated mental test (Appendices 1 and 2)

#### **Pain management**

The management of acute and chronic pain is particularly challenging in the 80+ age group, who may be given analgesia in an inappropriate dose by an inappropriate route. Communication is often difficult and it is recommended that pain management teams should supervise these patients with particular vigilance. This will frequently represent nursing on a one-to-one basis to provide optimal care and High Dependency Unit (HDU) facilities should be provided for the use of the elderly patient undergoing 'routine' surgery such as fractured neck of femur, the pain management of which is often sub-standard in busy ward situations.

### **Concomitant drug therapy**

Current long-term medications should usually be continued throughout the hospital stay [6]. It is often difficult to ascertain exactly which medications are being taken, especially in cases of acute admission to hospital. Drugs may be inadvertently stopped, patients themselves may stop taking medication or they may be confused as to what drug they are taking. Alcohol and tobacco are the drugs most commonly stopped abruptly on admission to hospital, often with deleterious results. It may be necessary to obtain exact details of current medications and social habits from a relative or from the patient's general practitioner.

### **Decision to operate**

Heroic surgery may be futile in particular patients. A decision not to operate should be made at consultant level, ideally in conjunction with other members of the interdisciplinary team and with input from the family. Where possible, the patient should be involved in any discussion. An appropriate decision not to undertake major surgery should be viewed as a positive one. However, there may still be the necessity for palliative surgery to improve the quality of life, for example a feeding gastrostomy or oesophageal dilatation. Anaesthesia should not be withheld in these instances, providing the anaesthetist feels that the patient has been suitably prepared. All stages of decision-making should be documented.

## **INTRA-OPERATIVE CARE**

Anaesthetic techniques that are appropriate for young, fit adults may be unsafe when used to anaesthetise elderly patients. There should be guidelines to ensure that an anaesthetist experienced in the care of the elderly is responsible for these cases. The safety of the elderly patient is usually greatest intra-operatively.

### **Fluid management**

In the elderly, overhydration, especially in the presence of borderline or overt renal failure, can cause acute cardiac failure and pulmonary oedema. Recent NCEPOD Reports have highlighted the impact of overhydration in this age group. Dehydration, which can be difficult to assess in the elderly, may conversely precipitate further renal impairment [7].

### **Temperature**

Maintenance of body temperature pre-, intra-, and postoperatively is essential. Elderly patients may be unable to increase their metabolic rate to counteract heat loss. Shivering may increase oxygen demand above respiratory capacity. Conservation of heat by the use of active warm air systems, by warming intravenous fluids and by operating, where possible, in a warm ambient environment all help to maintain body temperature and aid recovery [8]. Active warming techniques should be continued in recovery. Full resources for the provision of this type of care must be enabled by management.

### **Pressure areas**

Most pressure sores develop within the first 24 hours following surgery. Pressure sores prolong hospital stay, delay essential rehabilitation and may produce sepsis which can be fatal. Preventative measures are especially important during prolonged operations and may be compounded by periods of hypotension with poor skin perfusion. Adequate equipment in both operating theatre and recovery areas for the prevention of skin damage must be provided and maintained.

## **POSTOPERATIVE CARE**

Many of the problems of pre- and intra-operative care extend into the postoperative period, e.g. confusion, maintenance of temperature, pain management, DVT prophylaxis and renal disease especially in relation to fluid management. Nursing levels must reflect the additional needs that this group of patient requires. Nursing care of the elderly is a skilled and demanding job; ideally this should be in a 24-hour recovery ward or in an HDU.

### **Fluid management**

The misinterpretation of, and the failure to read, fluid balance charts have been highlighted by NCEPOD as major contributory factors in postoperative morbidity and mortality. Mortality ensued from a failure to note or act upon the discrepancy of daily input to output leading to cardiac failure and pulmonary oedema. Fluid management “should be accorded the same status as drug prescriptions” [8]. The provision of adequate staffing numbers to permit such basic standards of care must be provided.

### **Pain**

The majority of the elderly patients notified to NCEPOD underwent surgery in hospitals which had an Acute Pain Service but only a minority had pain assessment charts [7]. These charts should include regular pain and sedation scoring using, where necessary, recognised non-verbal scoring systems. The use of pain assessment charts improves pain management and reduces the chance of complications related to postoperative analgesia. Opiates, when given in the correct doses by the most appropriate route of administration, work well. Pain teams must have the personnel and resources to provide the type of care that the elderly require.

### **Nutrition**

Parenteral or enteral nutrition should be continued from the pre-operative period or instigated early after surgery to facilitate healing and aid recovery. As an example, mortality following fractured neck of femur is reduced when fine bore nasogastric feeding is introduced [9]. This type of care will frequently require additional nursing provision and the necessary resources must be provided by management.

### **Rehabilitation**

Early mobilisation following surgery facilitates postoperative recovery. The contribution of physiotherapy and occupational therapy is often underestimated, and ongoing rehabilitation is vital to ensure maximum recovery following surgery.

### **High dependency care**

Postoperative high dependency care may improve the long-term outcome of elderly patients undergoing urgent surgery with non-malignant disease [10, 11]. However, not all hospitals have HDU facilities. In hospitals where the elderly undergo surgery, there is an urgent requirement for 24 hour recovery, intermediate and intensive care facilities.

# **APPENDIX 1**

## **Abbreviated Mental Test**

The patient should be asked for the following information:

- Age
- Time (to the nearest hour)
- Address - to recall at the end of the test: 42 West Street ( ask patient to repeat the address to ensure it has been heard correctly)
- Year
- Name of hospital
- Recognition of two persons (e.g. doctor, nurse)
- Date of birth
- Year of start of the First World War
- Name of monarch
- Count downwards from 20 to 1

## APPENDIX 2

### Mini-Mental State Examination:

Score	Section	Task
	Orientation	
5		What is – the year, season, date, day, month
5		Where are we – country, county, town, hospital, floor
	Registration	
3		Name 3 objects – 1 second to say each, then ask patient to recall all three. Repeat until the patient has learnt all three. Count and record trials
5		Serial 7s – one point for each correct. Stop after 5 correct. Alternatively – spell ‘world’ backwards
3		Ask for the 3 objects repeated above – Give an example of each.
	Language	
2		Name a pencil and a watch
1		Repeat the following ‘ no ifs, ands, or buts’
3		Follow a 3-stage command: ‘take a paper in your right hand, fold it in half, and put it on the floor.’
3		Read and obey the following: ‘close your eyes’, ‘write a sentence’, ‘copy a design’
30	Total Score	

From Folstein MF, Folstein SE, McHugh PR. A practical method for grading the cognitive state of patients for the clinician. Journal of Psychiatry Research. 1975; 12: 189-98

This test takes about 10-15 minutes, and requires some written material for the last test.

#### Score Results:

30 – 29	Normal
28 – 26	Borderline cognitive dysfunction
25 – 18	Marked cognitive dysfunction – may be diagnosed as demented
<17	Severe dysfunction – severe dementia

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