As life expectancy and mean age increases the number of elderly patients requiring surgery increases. Today ‘elderly’ is defined as subjects aged > 65 years and in Europe there is a dramatic increase in this group [1, 2]. The relative demand for surgery is huge in this age group and efforts should, of course, be focused on maintaining adequate qualitative health care for the entire population including the elderly [3].

Aging: a physiological process

Age is an important factor when assessing patients for surgery in general and, of course, is important in patients scheduled for day case procedures. Aging is a natural process having impact on physiology and pharmacology. There are many excellent web pages and textbooks about the physiological processes associated with aging [4-6]. The physiological changes associated with aging must be taken into account in the preparation for day case surgery. Co-morbidity commonly associated with aging increases the peri-operative risk of an adverse event [3]. There is, however, no data showing any specific increased risk associated with day case surgery in the elderly. The preparations and pre-operative evaluation before day case surgery should follow standard general routines.

Peri-operative morbidity and mortality

The risk of peri-operative major complications and mortality is low in elective surgery; however, elderly patients have an increased risk of cardiovascular and respiratory events, more serious complications and increased peri-operative mortality [7]. It been repeatedly shown that major morbidity and mortality is associated with ASA physical status and age [7, 8]. Cardiovascular and respiratory events, postoperative delirium and postoperative cognitive dysfunction (POCD) increase with increasing age [3].

The cognitive deterioration associated with surgery and hospitalisation

The elderly are more fragile and may develop various degrees of more or less reversible deterioration in cognitive capacity or delirium-like states, or both, postoperatively. Effective planning avoiding prolonged pre-operative fasting and facilitating early discharge to the home environment may reduce the risk of cognitive impairment [9]. ISPOCD investigators studied in-patient vs. day surgery and suggested that there was less cognitive dysfunction in the first postoperative week in elderly patients undergoing minor surgery on an out-patient basis and supported a strategy of avoiding hospitalization of older patients whenever possible [10]. Although regional anaesthesia may be the preferred anaesthetic technique for minor surgery, anaesthetic technique has not been shown to have an important impact in the elderly on the risk of cognitive deterioration [11]. The choice of opioid, however, may have an impact on the risk of delirium [9].
Pre-operative assessment

Age and associated co-morbidities should be evaluated and handled in accordance with general pre-operative guidelines; there is no unique need for additional physical pre-operative assessment in the elderly scheduled for day surgery. It is, however, important that the elderly patient, when scheduled for a day case procedure, is prepared pre-operatively and assessed as if the procedure was to be performed as an in-patient. It is not acceptable to exclude proper evaluation. Elderly patients scheduled for day surgery must be assessed, informed and prepared for an early return home; the use of relatives, family members, primary care physicians and other resources likely to be needed during the postoperative convalescence at home must be adequately planned. Medication should be readily available and the basic aspect of hygiene and basic every day care should be acknowledged [12].

Is day case surgery a preferred alternative in elderly?

Day case surgery should be seen as an alternative in the elderly patient. The elderly may safely undergo ambulatory surgery but are at increased risk for haemodynamic variations in the operating room [13]. Age and obesity are also risk factors for hypoxia during sedation [14].

The patient’s discharge plan should identify and address age-related barriers to communication, incorporate the patient’s existing physical and medical condition, diminish the negative effects of social support challenges, and address environmental issues that can be improved to support recovery. The elderly patient often suffers from isolation from family or friends, aging bodies, hearing and visual loss, financial limitations, and emotional challenges [12, 15]. With adequate planning discharge on the day of surgery is a valid option. Most people would, without doubt, prefer to rest and recover in their home environment when appropriate. The elderly patient may further benefit from this approach since they can return home to recuperate in familiar surroundings. Changes in environment may be deleterious, especially in elderly. There are studies showing less cognitive dysfunction in the first postoperative week in elderly patients undergoing minor surgery on an out-patient basis which supports a strategy of avoiding hospitalisation in this group when possible [10]. However, the incidence of POCD in elderly patients on the first days following minor surgery should be acknowledged and is more common than after both propofol and sevoflurane based anaesthesia, compared with age-matched controls [16].

Peri-operative care of elderly patients scheduled for day case surgery

It is advisable to try to schedule the elderly patient for surgery in the morning in order to allow for a possible somewhat prolonged observation period before discharge. Avoiding a prolonged (> 2 h) fluid fast may reduce the risk of postoperative confusion [9]. Minimising opioid use and, whenever feasible, using regional anaesthesia techniques may reduce the risk for POCD and facilitate rapid and safe discharge.

Dosing should be age-adjusted and administration of anaesthetics, sedatives and analgesics should be done carefully and with vigilant monitoring of vital signs. The MAC of volatile anaesthetic agents decreases with age and other anaesthetics should be dosed taking age into consideration [17]. Metabolism and excretion is slower in the elderly and recovery may be somewhat prolonged. The elderly patient is prone to a more pronounced decrease in body temperature during surgery and anaesthesia and appropriate actions should be taken to avoid a fall in core temperature.

Elderly patients often exhibit minor cardiovascular events intra-operatively and vigilant monitoring to permit to management of minor changes in heart rate, blood pressure and saturations should be available [18]. Whether the potential protective properties of halogenated inhaled anaesthetic agents on cardiac function has any clinical importance in day case anaesthesia is not known [19, 20].

The elderly usually experience less PONV and complain less of pain postoperatively [18]. However, effective pain relief should be provided. Multi-modal pain management should be used taking into account potential risk factors such as cardiovascular disease and renal impairment [21]. Use of long-acting local anaesthetic solutions at wound closure is recommended, whenever possible. Paracetamol and short-term use of the lowest effective dose of a NSAID may, in many elderly patients, be a safe and valuable option [20, 22].
Recovery and discharge

Discharge of the elderly is based on the same discharge criteria as for other patients. Evaluation of cognitive function is important, and ensuring fluid intake, consumption of a small snack and urinary voiding seems reasonable before sending the elderly patients home. Escort during transfer and availability of relatives and back-up during the early postoperative course at home is fundamental. Elderly patients are more commonly admitted for overnight stay and the option (‘rescue admission’) should be available. Admission is commonly due to surgical, anaesthetic or social reasons. The duration of surgery and late start of surgery increases the risk of overnight hospital admission [23, 24]. The planning and organisation for day case surgery of the elderly patient must involve all parties: anaesthetist, surgeon and the entire health care staff in order to secure a good quality of care and safety [25].

Key learning points

- Day case surgery may be a superior option for the elderly patients scheduled for minor or intermediate surgery avoiding prolonged hospitalisation and thus change of environment
- Appropriate planning, pre-operative preparations and assessment, but also the post-discharge recovery and rehabilitation must be arranged
- Regional anaesthesia with or without supplementary sedation should be chosen whenever feasible
- Anaesthetics and analgesics should be administered in age-adjusted doses
- Dosing should be done with caution with vigilant surveillance of vital signs; cardiovascular and respiratory events are not infrequently seen intra-operatively

References