

Perioperative care of elderly outpatient

A review



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Perioperative care of elderly outpatients. A review

INTRODUCTION: Epidemiological data show a continuous expansion of elderly population in Europe. Older individuals require more medical services relative to their younger counterparts. The aim of this review was to summarize the most recent considerations in regards to preoperative assessment, postoperative outcomes, patient satisfaction and cost-effectiveness analysis of day surgery in the elderly.

METHODS: This review considered studies that included older patients who were undergoing day surgery general procedures (such as inguinal hernia repair, excision of breast lump, haemorrhoidectomy). The interventions of interest to this review included selection criteria, perioperative care, management of postoperative pain.

RESULTS: According to a large number of studies, old age does not constitute a contraindication for elderly to undergo ambulatory surgery but this population may require more careful intraoperative cardiovascular management. Hospitalization of older patients is frequently associated with postoperative cognitive dysfunction (POCD).

Management of postoperative pain in older patients may be complicated by a number of factors, including a higher risk of age- and disease-related changes in physiology and disease-drug and drug-drug interactions. Early studies evaluating approaches to facilitating the recovery process have demonstrated the benefits of multimodal analgesic techniques.

CONCLUSIONS: A lot of studies show that even elderly patients can successfully undergo day surgery procedures by implementing evidence-based perioperative care programs, minimizing operative duration and tissue trauma and providing a comfortable setting.

KEY WORDS: Day surgery, Elderly, Perioperative management, Elective surgery

Introduction

Given the recent advances in anesthesia, surgery, and monitoring technology, Day Surgery (DS) can offer potential advantages for elderly patients undergoing elective surgery.

Epidemiological data show a continuous expansion of elderly population in Europe. The growth in the relative share of older people may be explained by increased

longevity. On the other hand, low levels of fertility have been maintained across most of the EU in recent years; this has resulted in a decreasing share of young people in the total population. This development is often referred to as "ageing at the top" of the population pyramid (Fig. 1).

Persons aged 65 or over will account for 30% of the EU27's population by 2060. The rate of people aged 80 and over will shift in Europe from about 4.4% in 2008 to 12.1% in 2060^{1,2}.

A common feature to all the European countries is the massive predominance of public funding in inpatient care. Between 1998 and 2008, almost all European countries were able to reduce the length of stay by at least 1 bed-day. The exceptions were the smallest countries – Denmark, Malta and Luxemburg – but also two big countries – France and Italy – whose variation were minors^{3,4}.

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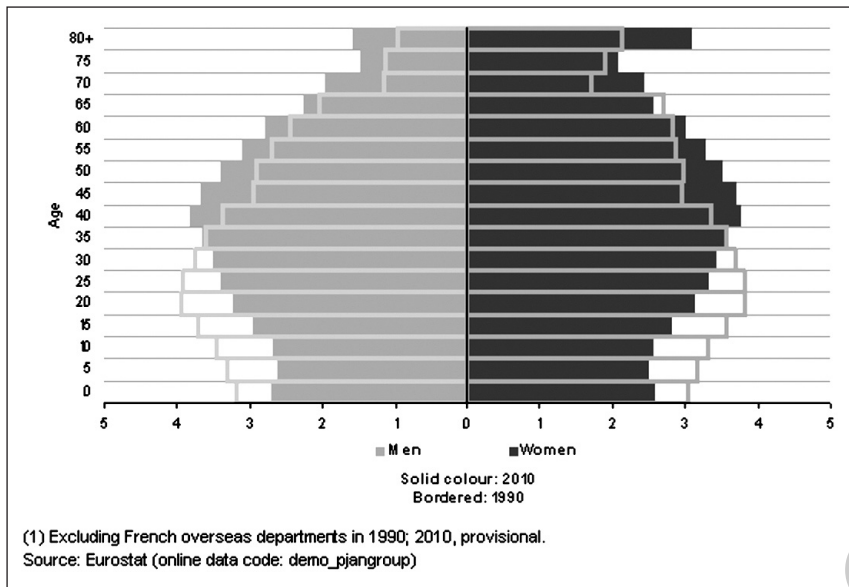


Fig. 1: The population pyramid shows the distribution of the population in Europe in 1990 and in 2010 by sex and by five-year age groups.

Older individuals require more medical services relative to their younger counterparts. As the proportion of elderly patients in the population increases, the medical system will face new challenges ^{5,6}.

Despite surgical and anaesthetic advances and improvements in the medical care of older surgical patients, adverse postoperative outcomes, particularly medical complications still remain commoner in older people when compared with their younger counterparts ^{7,8}.

The aim of this review was to summarize the most recent considerations in regards to preoperative assessment, postoperative outcomes, patient satisfaction and cost-effectiveness analysis of day surgery in the elderly.

Methods

This review considered studies that included older patients who were undergoing day surgery general procedures (such as inguinal hernia repair, excision of breast lump, haemorrhoidectomy, varicose vein stripping or ligation).

The interventions of interest to this review included selection criteria, perioperative care, management of postoperative pain.

The outcome measures included infection rates, postoperative delirium, readmission, healing, patient satisfaction, length of stay, pain levels, anxiety levels, psychosocial measures, discharge planning, knowledge, perceived independence, intraoperative and postoperative adverse events.

This review considered randomized controlled trials (RCTs). Cohort, case control studies and studies with other appropriate research designs were also included where RCTs were not found.

Article published in the last twenty years in English and indexed in the Medline database were searched.

The search terms used were: "outpatient surgery", "perioperative care", "older surgical patients", "outcomes", "readmission".

Results

Best practice guidelines for day surgery in the elderly do not exist due to the lack of specific studies.

Selection criteria: when patients are referred for day surgery it is essential to ensure that the procedure is suitable, the risk of complications are minimized, admission to an inpatient bed following day surgery is prevented, patients are adequately supported after discharge home ⁹.

There is general agreement that age as an independent risk factor for perioperative complications and death should not be considered as an exclusion criterion from day-surgery ^{10,11}.

On the basis of various clinical studies and observations it must be concluded that advanced age is an independent predictor of adverse perioperative cardiac outcome. It is to be expected that the aged cardiovascular risk patient carries an even higher perioperative cardiac risk than the younger cardiovascular risk patient. Although knowledge of the physiology of ageing should help reduce age-related complications, successful prophylaxis is hindered by the heterogeneity of age-related changes, unpredictable physiological and pharmacological interactions and diagnostic difficulties ¹²⁻¹⁵.

A prospective cohort study of Chung F. et al ¹⁶ examined whether ambulatory surgery carries a higher risk for the elderly than for younger patients. The results reported showed in older patients a higher incidence of any intraoperative events, of intraoperative cardiovascular events but a lower incidence of any postoperative event,

of postoperative pain, nausea, vomiting and dizziness. According to the Authors, the risks reported do not constitute a contraindication for elderly patients to undergo ambulatory surgery but this population may require more careful intraoperative cardiovascular management. Another observational study conducted by Leung JM and Dzankic¹⁷ demonstrates that the postoperative mortality rate in geriatric surgical patients undergoing noncardiac surgery is low. Despite the prevalence of preoperative chronic medical conditions, most patients do well postoperatively.

In addition, a recent study found emotional and cognitive factors were predictors of postoperative side effects such as pain, nausea and vomiting¹⁸. Patient and relatives comprehension, which is an important criterion for day surgery, can be more difficult if the patient is older and it requires specific skills¹⁹.

Specific problems and their management: The recognition and optimization of comorbid conditions – particularly diabetes, cardiovascular disease, pulmonary disorders, hepatic disease or renal impairment – in advance of surgery is especially important in the elderly.

There is a clear consensus to continue most chronic medications up to and on the day of surgery (particularly β -blockers and statins)²⁰⁻²². There is neither level 1 evidence to support the hypothesis that pre-operative control of arterial blood pressure is beneficial in reducing adverse events nor that moderate hypertension is a predictor of adverse outcomes. Even if cardiovascular complications are common in hypertensive patients, they are of limited consequence. Pre-operative blood pressure of more than 160/100 mmHg would require further investigation and treatment. It is common for all antihypertensive agents to be continued except ACE inhibitors. As intra-operative hypotension is more frequent, whether ACE inhibitors and angiotensin blocking drugs should be continued as before or stopped is still controversial²³.

Perioperative continuation of antithrombotic and antiplatelet drugs in ambulatory setting is widely debated. A comprehensive guideline was recently published by the European Society of Anesthesiologists on regional anaesthesia suggesting that elderly patients undergoing ambulatory procedures should continue antiplatelet drug therapy^{24,25}.

Elderly patients with obstructive lung diseases should be carefully evaluated before surgery in order to decide the adequate anesthetic technique. Firstly, the severity of the chronic obstructive pulmonary disease (COPD) and the degree of bronchial hyperreactivity will determine the perioperative anaesthetic risk. The use of regional anaesthesia alone or in combination with general anaesthesia can help to avoid airway irritation and also leads to reduced postoperative complications. Prophylactic anti-obstructive treatment, volatile anaesthetics, propofol, opioids, and an adequate choice of muscle relaxants minimize the anaesthetic risk when general anaesthesia is nec-

essary. If intraoperative bronchospasm occurs, despite all precautions, deepening of anaesthesia, repeated administration of beta2-adrenergic agents and parasympatholytics, and a single systemic dose of corticosteroids are the main treatment options²⁶⁻³⁰.

In elderly patients who are undergoing day surgery, smoking cessation has been demonstrated to reduce risk of perioperative complications and should be strongly encouraged at least 4 weeks before surgery^{31,32}.

No study has been conducted in elderly outpatient with cirrhosis. Most studies on perioperative risk among patients with cirrhosis show that the most important risk factor for preoperative morbidity and mortality is the severity of liver dysfunction³³.

Patients with diabetes often present for ambulatory surgery. No guidelines are available for the perioperative management of elderly diabetics. A large number of studies have demonstrated that poor perioperative glucose control is associated with adverse outcomes³⁴.

Perioperative monitoring of blood glucose in diabetic patients and the optimization of their treatment has been demonstrated to reduce infectious complications³⁵.

Renal acute failure, which is a frequent complication in elderly patients, is often multifactorial due to hypoxic damage to nephrons. The most important risk factors are: pre-existing renal insufficiency, type 1 diabetes mellitus, patient age over 65 yr, major vascular surgery, cardiopulmonary bypass times over 3 h and recent exposure to nephrotoxic agents, such as radio-contrast dyes, bile pigments, aminoglycoside antibiotics and NSAIDs. There are few randomized trials on prevention of perioperative renal dysfunction. Some possible strategies include careful blood pressure control, avoiding hypovolemia and estimating creatinine clearance^{36,37}.

Hospitalization of older patients is frequently associated with postoperative cognitive dysfunction (POCD)³⁸⁻⁴⁰. A study of Canet J et al⁴¹ has compared incidence of POCD in 372 patients aged greater than 60 years scheduled for minor surgery under general anaesthesia. The patients were allocated to either in- (199) or out-patient (173) care. Logistic regression analysis identified the following significant risk factors: age greater than 70 years (odds ratio [OR]:3,8 [1,7 – 8,7], P = 0,01) and in- vs out-patient surgery (OR: 2,8 [1,2 – 6,3], P = 0,04). These findings support a strategy of avoiding hospitalization of older patients when possible. Moreover, a review of literature on POCD shows that regional anaesthesia does not seem to reduce the incidence of POCD.

Postoperative analgesia: Effective postoperative analgesia is essential in older patients because inadequate pain control after surgery is associated with adverse outcomes in these patients. Moreover, management of postoperative pain in older patients may be complicated by a number of factors, including a higher risk of age- and disease-related changes in physiology and disease-drug and drug-drug interactions⁴²⁻⁴⁴. To minimize the adverse effects

of analgesic medications, "balanced" analgesic techniques involving the use of smaller doses of opioids in combination with non-opioid analgesic drugs are becoming increasingly popular approaches for postoperative pain control⁴⁵.

The beneficial role of multimodal analgesia for ambulatory surgery was reported in younger outpatients undergoing gynecological surgery⁴⁶ and cholecystectomy⁴⁷. Both of these early clinical studies demonstrated the benefits of local anesthetic injection at the surgical site in combination with nonsteroidal anti-inflammatory drugs (NSAIDs) for improving recovery. A small number of clinical studies have analysed the effectiveness of postoperative pain treatment in the elderly⁴⁸⁻⁵². However, in view of pharmacokinetic and pharmacodynamic changes in older persons, the higher incidence of coexisting diseases, every drug must be carefully adjusted to suit every patient.

Conclusions

Geriatric day surgery may offer many potential advantages for older patients, hospitals and society-in-large in terms of postoperative outcomes, cost containment and reduction of waiting lists.

A randomized clinical trial has been performed to compare patient satisfaction after knee reconstruction between inpatients and outpatients. It has confirmed that elderly preferred outpatient setting⁵³.

Preoperative clinical evaluation plays a key role in geriatric day surgery by influencing the choice of preoperative medication, anesthetics and techniques, as well as the administration of adjunctive drugs to facilitate recovery after surgery⁵⁴⁻⁵⁶.

A large number of articles propose the use of mobile health systems and home telemedicine to improve follow-up care after day surgery in the elderly⁵⁷⁻⁵⁹.

Future research should focus on development of specific selection criteria, minimally invasive surgical techniques and effective and well tolerated postoperative pain treatment⁶⁰⁻⁷⁸.

Riassunto

INTRODUZIONE: I dati epidemiologici mostrano una continua crescita della popolazione anziana in Europa. I pazienti anziani richiedono più prestazioni mediche e chirurgiche rispetto alla popolazione giovane.

L'obiettivo di questa review è stato di riassumere le più recenti considerazioni riguardo alla valutazione preoperatoria, i risultati postoperatori, la soddisfazione dei pazienti e l'analisi costo-efficacia della day surgery nell'anziano.

MATERIALE E METODO: Questa review ha considerato gli studi che includevano pazienti anziani che erano stati sottoposti a procedure di chirurgia generale in day sur-

gery (per esempio ernioplastica inguinale, asportazione di un nodulo mammario, emorroidectomia).

Gli aspetti che abbiamo focalizzato in questa review sono stati i criteri di selezione, la gestione perioperatoria e la terapia del dolore postoperatorio.

RISULTATI: Nonostante la prevalenza di patologie mediche croniche concomitanti, dall'analisi delle numerose casistiche la morbilità e mortalità postoperatorie dei pazienti anziani operati in day surgery sono basse. L'ospedalizzazione dei pazienti anziani è frequentemente associata con disfunzione cognitiva postoperatoria (POCD). Il trattamento del dolore postoperatorio deve tenere in considerazione il maggior rischio nell'anziano di interazioni farmaco-farmaco e farmaco-malattia. I primi studi che valutano gli approcci per un più rapido recupero dall'atto operatorio hanno dimostrato i benefici nell'anziano delle tecniche analgesiche multimodali.

CONCLUSIONI: Molti Autori hanno messo in evidenza che la day surgery è fattibile e sicura anche nell'anziano. Ulteriori ricerche devono essere effettuate per realizzare dei programmi evidence-based di gestione perioperatoria dell'anziano.

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