

Clinical Science

Does comprehensive geriatric assessment improve the estimate of surgical risk in elderly patients? An Italian multicenter observational study



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Elderly patient;
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Abstract

BACKGROUND: The evaluation of surgical risk is crucial in elderly patients. At present, there is little evidence of the usefulness of comprehensive geriatric assessment (CGA) as a part of the overall assessment of surgical elderly patients.

METHODS: We verified whether CGA associated with established surgical risk assessment tools is able to improve the prediction of postoperative morbidity and mortality in 377 elderly patients undergoing elective surgery.

RESULTS: Overall mortality and morbidity were 2.4% and 19.9%, respectively. Multivariate analysis showed that impaired cognitive function (odds ratio [OR], 1.33; 95% confidence interval [CI], 1.15 to 4.22; $P < .02$) and higher Physiological and Operative Severity Score for the Enumeration of Mortality and Morbidity (OR, 1.11; 95% CI, 1.00 to 1.23; $P < .04$) are predictive of mortality.

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Higher comorbidity is predictive of morbidity (OR, 2.12; 95% CI, 1.06 to 4.22; $P < .03$) and higher American Society of Anesthesiologists (OR, 2.18; 95% CI, 1.31 to 3.63; $P < .001$) and National Confidential Enquiry into Patient Outcome of Death score (OR, 2.03; 95% CI, 1.03 to 4.00; $P < .04$).

CONCLUSIONS: In elective surgical elderly patients, the morbidity and mortality are low. The use of CGA improves the identification of elderly patients at higher risk of adverse events, independent of the surgical prognostic indices.

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In 2030, half the population will be older than 50 years, with an expected life expectancy of 40 years, and a quarter of the population will be older than 65 years.¹ In this scenario, age-related surgical diseases, such as lung, colon–rectum, pancreas, and stomach cancer, are expected to become more frequent.² Therefore, the assessment of surgical risk in elderly patients should assume progressively greater importance.^{3–6}

The 30-day mortality in patients older than 80 years enrolled in the “Veterans Affairs National Surgical Quality Improvement Project” underwent noncardiac surgery, both elective and in emergency.⁷ In this sample, the mortality was 8% and reached 25% in elderly patients who experienced major complications; peak mortalities was 52% for acute renal failure and 88% for myocardial infarction.⁷ These results have also shown that emergency surgery, high American Society of Anesthesiologists score, and, above all, comorbidity are strongly associated with morbidity and mortality in the geriatric patient.⁷ Recently, a study conducted by the Anesthesia Quality Institute National Anesthesia Clinical Outcomes Registry demonstrated that older adults had greater surgical mortality and more complications than younger adults.⁸

The evaluation of the surgical risk is currently performed using different validated tools. Physiological and Operative Severity Score for the Enumeration of Mortality and Morbidity (POSSUM),⁹ Surgical Risk Score (SRS)¹⁰ that includes the National Confidential Enquiry into Patient Outcome of Death (NCEPOD),¹¹ American Society of Anesthesiologists (ASA),¹² and British United Provident Association (BUPA) are the more validated ones.¹³ These instruments, although extensively used at any age, including in the geriatric patient, do differ from the typical approach offered by the comprehensive geriatric assessment (CGA),^{14,15} which is considered the gold standard for the global assessment of health status in elderly subjects. The CGA explores the functional status, comorbidity, nutritional status, emotional and cognitive functions, family situation, and socioeconomic status, to provide a global assessment of the elderly.^{14,15} The information obtained from the CGA can be used for developing an individualized health care plan aimed at preventing hospitalization and especially maintaining self-sufficiency in elderly subjects.^{14,15}

Thus, the aim of this study was to verify if CGA can improve the prediction of morbidity and mortality in elderly patients undergoing surgical intervention, when

used together with established tools for assessment of surgical risk.

Methods

Study design

This is a prospective, observational, multicenter study for the evaluation of surgical risk in 396 patients aged 65 years or older, with surgical indication in a period of 20 months and a follow-up of 30 days. Because 19 patients (5.0%) were lost during the follow-up, the final sample consisted of 377 patients.

Inclusion criteria

Subjects to be enrolled were aged 65 years and older and were scheduled for elective surgery.

Exclusion criteria

- Emergency surgery, day surgery, surgery under local anesthesia with the exception of the carotid thromboendarterectomy, and palliative surgery in terminal cancer patient.

Surgical units

The study was conducted in 5 different surgical units of academic hospitals across Italy:

- General and urologic surgery (Federico II University, Napoli),
- Cardiovascular surgery (University of Florence),
- Thoracic and pulmonary surgery (University of Perugia),
- Orthopedic and traumatologic surgery (Federico II University, Napoli), and
- Oncologic surgery (University of Genova).

End points

Primary end point was 30-day mortality. A variety of secondary end points were also considered: intraoperative mortality, in-hospital mortality, and postoperative morbidity (see [Appendix 1](#)).

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