Clinical characteristics and outcomes of the oldest old surgical critical patient

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Introduction

The elderly population might be subclassified in three categories: young elderly 65-75 years, older elderly 75-85 years, very elderly >85 years⁽¹⁾. The percentage of very elderly patients has been rising in the last years, as well as the number of surgeries performed in this population. Therefore, there's also been an increase of the mean age of patients admitted in the Surgical Intensive Care Unit (SICU).^(1,2)

Study purpose

To compare surgical outcomes evaluating the impact of age and functional status on SICU admitted patients.

Methods

Study-type:observational retrospective study

Population: Patients admitted at SICU

Temporal interval: January 2006 to July 2013

Inclusion criteria:Patients submitted to non-cardiac, non-neurologic elective and emergent surgery admitted at SICU

Exclusion criteria:

- Age < 65;
- length of stay < 12h in SICU;
- patients readmitted in the context of initial admission in the study period

Patients aged >85 years were considered to be “very elderly” (VEG – very elderly group)

Patient's demographics, intraoperative and postoperative data were collected. Descriptive analysis was performed and the *Mann-Whitney U* test, *Fisher's* exact test or *Chi-square* were used.

Results

2331 patients included

EG	VEG
2205	126
94,6%	5,4%

Table 1 – Univariate analysis of patients demographics and clinical values

Variables	EG	VEG	p value
Male gender, n(%)	1400 (63.5)	52 (41.3)	< 0.001
Admission- Elective surgery, n (%)	1960 (88.8)	98 (77.7)	<0.001
History of ischemic heart disease, n (%)	421 (19.1)	21 (16.7)	0.499
History of congestive heart disease, n (%)	462 (21)	45 (35.7)	<0.001
History of cerebrovascular disease, n (%)	412 (18.7)	20 (15.9)	0.430
Preoperative insuline therapy n (%)	139 (6.3)	7(5.6)	0.736
Chronic renal failure, n (%)	169 (7.7)	14 (11.1)	0.162
RCRI >2, n (%)	241 (10.9)	13 (10.3)	0.083
Organ insufficiency, n (%)	389 (17.6)	31 (24.6)	0.048
Body temperatura, median (P25-75)	35.7 (34.5-36.0)	35,6 (34.6-36.0)	0.812
Heart rate, median (P25-75)	85.0 (70.0-96.0)	78.5 (65.0-93.0)	0,589
Respiratory rate, mediana (P25-75)	14.0 (12.0-16.0)	14,0 (12.0-16.0)	0.621
Systolic blood pressure, median (P25-75)	122.0 (102.0-145.0)	121.5 (99.8-140.5)	0.082
Mean blood pressure, median (P25-75)	85.0 (70.0-96.0)	78,5 (65.0-93.0)	0.015
Hematocrit,median (P25-75)	33.0 (29.5-36.0)	32.3 (29.9-35.6)	0.281
Urea, median (P25-75)	32.0 (22.0-46.0)	36.0 (24.8-50.3)	0.046
Serum creatinine, median (P25-75)	9.0 (7.0-12.0)	9.95 (7.0-13.0)	0.288
Total bilirubin, median (P25-75)	5.0 (1.0-7.0)	4.0 (1.0-7.0)	0.118
Leucocytes, median (P25-75)	10.4(7.6-13.4)	10.6 (7.7-13.0)	0.894
Serum sodium, median (P25-75)	140.0 (130.0-142.0)	139.0 (137.0-142.0)	0.293
Serum potassium, median (P25-75)	3.8 (3.4-4.1)	3.8 (3.3-4.0)	0.330
Ventilated, n (%)	651.0 (29.5)	32.0 (25.4)	0.322
FiO2, median (P25-75)	0.4 (0.3-0.4)	0.4 (0.3-0.4)	0.148
pH, median (P25-75)	7.4 (7.3-7.4)	7.4 (7.3-7.4)	0.648
PaO2, median (P25-75)	100.0 (100.0-109.0)	100.0 (100.0-105.0)	0.695
PaCO2, median (P25-75)	40.0 (35.0-45.0)	41.0 (35.7-45.0)	0.096
Serum bicarbonate, median (P25-75)	22.0 (21.0-24.0)	22.0 (21.0-24.0)	0.080

Table 2 – Severity of disease scores, length of stay and mortality

Variables	EG	VEG	p value
SAPS II, median (P25-75)	22.2(17.8-28.9)	26.7 (20-33.9)	<0.001
APACHE II, median (P25-75)	10.0 (8.0-13.0)	12.0 (9.0-15.3)	<0.001
Time in SICU (hours), median (P25-75)	20 (16-41)	20 (16-43)	0.898
MCE, n (%)	74.0 (3.4)	1.0 (0.8)	0.079
SICU mortality, n (%)	37.0 (2.0)	6.0 (5.0)	0.026
Hospital mortality, n (%)	204.0 (9.0)	21.0 (17.0)	0.006

EG- Elderly Group; VEG- Very Elderly Group; RCRI –Revised Cardiac Risk Index; APACHE II-Acute Physiology and Chronic Health Evaluation; SAPS II- Simplified Acute Physiology Score; MCE –Major cardiac event; SICU – surgical intensive care unit

Discussion

The very elderly population represents an important group of patients admitted in the operating room and consequently in the SICU. It's important to understand how they may differ from the other patients, to prevent further complications.

Conclusions

In our study, it was identified a higher mortality rate at SICU and hospital in this very elderly group, and a higher prevalence of organ failure. This increased mortality was confirmed by higher severity of disease scores SAPS II and APACHE II.

References:

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