

A single-center study showing an increase of procedures among elderly ASA-PS 3-5 patients as well as increase in all-cause 30-day mortality. A study based on the Swedish perioperative register between 2015- 2021.

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Introduction: The segment of elderly with complex co-morbidities is increasing. Correspondingly there is an increasing need of surgical procedures for this high-risk patient group. Nor the increase of procedures or all-cause 30-day mortality among these patients, has been assessed in a Swedish perspective.

Aims: The aim was to describe the change in volume procedures requiring anesthetic personnel among ≥ 66 years ASA-PS 3-5 patients over a six-year time period, and further assess all-cause 30-day mortality.

Material and Methods: Data was derived from the **SPOR-database**. The cohort covered procedures of ASA-PS 3-5 patients, ≥ 66 years at Danderyd University hospital between 2015-2021. The yearly volume of procedures and mortality was analyzed with Person's Chi²-test. Trend of daily mortality rate was analyzed with linear regression.

Results: The annual volume of procedures varied, but increased by 31% and mortality almost doubled (5.0-9.6%) during year 6 compared to year 1 ($p = 2.8e^{-10}$). Among the 19,105 procedures included the total 30-day mortality rate was 7.7%. The daily mortality rate increased significantly for ASA-PS 3 and 4, whereas no results were significant for ASA-PS 5. There was no significant increase in the proportion of emergency procedures but a significant difference in total 30-day mortality, 10.4% compared to 5.1% in elective procedures ($p < 2.2e^{-16}$).

Conclusions: This single-center study showed that the volume of high-risk procedures increased significantly, most pronounced for ASA-PS 3. Unexpectedly, the all-cause mortality rate also increased, and almost doubled. Further studies analyzing the perioperative process among elderly high-risk patients is warranted in order to reduce mortality.

Keywords: elderly, co-morbidities, ASA-physical status, mortality, perioperative process