Although intensive care unit (ICU) admission of very old patients has been discussed for almost 20 years, the overall benefit of ICU admission for very old patients remains unknown. The best design to address the benefits of ICU admission, a randomized trial, was claimed to be infeasible on ethical grounds.1 Observational studies generally report lower crude mortality rates for patients admitted to an ICU than in those refused,2 yet studies of very old patients find similar crude mortality rates.3 A few studies have reported adjusted results using binary outcome models, but they did not focus on elderly patients and had contradictory conclusions.1,4 Comparisons of survival in admitted and nonadmitted patients is seldom published. Wunsh et al5 showed that elderly ICU survivors had a lower long-term survival than hospital discharge survivors who did not receive ICU care, matched on age, sex, race, and whether they had surgery. Survival curve comparisons require adjustment on more confounding factors such as comorbidities and initial severity.

To analyze the effect of ICU admission on mid- or long-term outcome, it is mandatory to target the “at-risk” population. All but 1 study on ICU admission failed to take into account pre-triage made by physicians from other specialties. The Intensive Care Elderly CUB-Réa (ICE-CUB) study, which focused on patients older than 80 years presenting to the emergency department (ED) with a condition potentially warranting ICU admission, reported the pre-triage made by ED physicians.3 Herein, we compare the survival between ICU admitted and nonadmitted patients from the ICE-CUB study with adjusted Cox model and adjusted survival curves using inverse probability weights (IPW) for confounder control.

Methods. The primary objective of the ICE-CUB study was to identify criteria used by ED and ICU physicians to admit or refuse patients to the ICU. All patients older than 80 years visiting the ED of 15 hospitals in the Paris metropolitan region with a condition potentially requiring ICU admission were included in the study between November 2004 and January 2006. Study design and inclusion criteria are detailed elsewhere.3 The effect of ICU admission on survival was first estimated by a Cox model adjusted for age in years, sex, main diagnosis category, functional and nutritional status, and diagnosis of cancer and was stratified by initial severity as assessed by the Mortality Probability Model at admission (MPM0). Second, to account for heterogeneity across centers, a random effect was introduced and its significance was tested with a likelihood ratio. Third, adjusted survival curves were produced using an IPW Kaplan-Meier estimation, where each individual was assigned a weight proportional to the probability he or she had of belonging to the group he or she actually belongs to.6

Results. During the 14-month study period, 2646 patients older than 80 years visiting the emergency department with a condition potentially warranting ICU admission; 2, Inverse probability weighted survival curves. ICU indicates intensive care unit.
Panel A of the Figure displays the unadjusted survival curves for admitted vs nonadmitted patients. The estimated hazard ratio comparing admitted vs nonadmitted patients from the adjusted Cox model was 1.20 (95% CI, 1.01-1.43). A Cox model with center as a random effect (P=.003) yielded a hazard ratio of 1.16 (95% CI, 0.93-1.45). Panel B of the Figure is a plot of the adjusted survival curves, showing a decrease in survival for patients admitted to the ICU compared with those not admitted (estimated IPW hazard ratio, 1.19; 95% CI, 1.01-1.45).

Comment. In this observational prospective cohort study, we were unable to show any benefit of ICU admission for very old patients. We chose to focus on long-term survival, more relevant than hospital survival, to investigate potential ICU benefit. This result should be interpreted cautiously because (1) we had no information on therapeutic limitation and (2) patients were not randomized and therefore residual confounding may still be present. Moreover, we cannot draw any conclusion on the benefit of ICU admission for accurately selected very old patients.

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Author Contributions: Dr Boumendil had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Boumendil, Latouche, and Guidet. Acquisition of data: Boumendil. Analysis and interpretation of data: Boumendil and Latouche. Drafting of the manuscript: Boumendil and Latouche. Critical revision of the manuscript for important intellectual content: Boumendil, Latouche, and Guidet. Statistical analysis: Boumendil and Latouche. Obtained funding: Boumendil and Guidet. Administrative, technical, and material support: Boumendil and Guidet. Study supervision: Guidet.


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HEALTH CARE REFORM

Declines in Physician Acceptance of Medicare and Private Coverage

A number of articles in the lay and medical press report a decline in the number of physicians who accept patients with Medicare,1-3 however, to our knowledge, recent trends in acceptance of different types of insurance have not been examined. Using data from a national survey of physicians, we examined trends in physician acceptance of different types of insurance and self-pay patients. Understanding these trends can help inform policy makers of potential access problems, particularly given the shortages in primary care, an aging population, growing prevalence of chronic disease, and insurance expansion under the Patient Protection and Affordable Care Act.4-6