Should This Elderly Patient Be Admitted to the ICU?

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Case presentation

You are called to examine an 86-year-old woman in the emergency room. She has obvious acute respiratory failure (respiration rate of 36 breaths/min; PaO2: 5.3 kPa (40 mmHg) while breathing room air), presumably secondary to a community-acquired pneumonia (body temperature 39°Celsius, chest X-ray with alveolar pattern in both lungs). She has no sign of shock and she is fully conscious. Besides usual work-up, what would you do to decide whether or not this patient should be admitted in ICU?

A decision to admit an elderly patient to intensive care is frequently difficult since it carries the risk of over- or under-utilisation of ICU with over- or under-treatment. Given the uncertainty of outcome (survival status and quality of life), it is important first to consider wishes and attitudes of the patient. In a recent European survey, 83% of senior ICU physicians considered seeking for relatives' opinion to be mandatory [1]. On the other hand, it is important for patients, family and referring physicians also to fully understand all implications of intensive care.

In real life, however, opinion about ICU admission is rarely sought. In the ICE-CUB1 study, involving 2115 elderly patients who were able to communicate, such opinions were sought in only 12.7% of the cases. The opinion was less likely to be asked in case of dementia, chronic neurological disease, lower autonomy, or by senior physicians. The latter suggests a paternalist approach of the decision making process [2]. In fact, elderly patients often prefer a lesser intensity of care which is more focused on comfort without undergoing invasive procedures [3]. Recent evidence suggests that the family preferences for end-of-life issues are not in concordance with the care that is actually provided. [4].

The classical ICU severity scores (SAPS, MPM, APACHE) all have increasing age as a risk factor, but do not include any specific geriatric conditions, and their discriminatory power in elderly patients is lower than for a younger population [5]. The ICE-CUB1 study identified factors independently associated with 6 month mortality in specifically elderly

patients: age, functional status assessed with ADL score, presence of an active cancer and poor nutritional status were all associated with a worse outcome [6].
Frailty is an attractive dimension since it integrates several facets of physiologic, functional and cognitive function. Clinical Frailty Scale (CFS) is a simple and visual scale of frailty with 9 classes. It has been developed in Canada and was first used in large scale within intensive care in a Canadian study [7] and has been associated with 6-month mortality [7,8]. In a prospective multinational study of involving 5132 very old intensive care patients (≥ 80 years) from 311 ICUs across 21 European countries (VIP1 study), frailty was present in 43.1% and was independently related to ICU (22.2%) and 30-day mortality (35.8%). The impact of frailty was more important that chronological age. This, again, emphasises that age should not be used alone to decide ICU admission [9] and "frailty may represent a more robust predictor of vulnerability and "recoverability" than chronological age alone, particularly in the context of critical illness" [10]. This is of paramount importance since the most relevant outcome is not ICU or even hospital mortality, but quality of life in survivors.

Several issues should be considered in order to reduce the consequences of the ICU stay, including a dedicated early rehabilitation program, and careful sedation. The goal of care should be discussed and family conferences organized after few days to adjust the treatment intensity. In the VIP1 study, the percentages of end-of-life decision (withhold and/or withdraw therapy) were 27.7% for the not frail, 31.2% for the pre-frail and 41.6% for the frail patients [9]. Healthcare professionals often do not document patient's wishes about end-of-life issue [11] although ambiguous end-of-life directives can make ICU triage difficult and complex, highlighting the importance of proactively addressing goals of care in elderly patients [12].

The hospital trajectory should be considered and not the ICU stay in isolation. During the triage process, if a patient is not admitted in ICU, he/she might receive good quality of care in intermediate care unit, geriatric or specialized ward. The post ICU mortality is

more than twice as high in patients above 80 compared to younger patients [13]. Except in acute geriatric units (AGU), geriatric expertise is usually not available on a regular basis in other wards. Due to their expertise in the field of multi-morbidities and acute stress in elderly, geriatricians make a more comprehensive assessment of old patients that in turn may lead to better care and decisions in these patients [14]. Therefore, including a geriatrician in shared decision-making for old ICU admitted patients may improve their outcome; yet no large-scale study support this hypothesis. Inclusion of geriatric expertise, however, has proven valuable in other areas of medicine [5]. Indeed, studies have documented that for post-operative elderly patients, mainly after hip fracture, the postoperative admission to a dedicated geriatric unit reduced both re-admission rate and 6-month mortality [15].

Evidence-based data documenting a benefice (or lack of such) of being admitted in ICU would clearly be the most convincing argument for patients, families, the GP or the colleagues within the hospital to admit or decline admission of elderly patients. Because it is not ethical to randomize admission at the patient level, a cluster-randomized study has been conducted to study the benefit of intensive care [16]. The hypothesis was that a program aiming at increasing intensive care unit (ICU) admission rates among critically ill elderly patients would translate in a beneficial effect on long-term outcomes. The trial included 3036 critically ill patients above 75 years. A recommendation for systematic ICU admission led to a significantly higher ICU-admission rate but had no significant effect on mortality at 6 months versus standard practice (adjusted relative risk, 1.05). There was also no impact on functional status and health related quality of life [16]. On the other hand it also exposes a number of patients to futile monitoring and procedures.

Returning to the 86-year-old woman in the case vignette, we should be guided by two principles when deciding to admit elderly patients: frailty and patient autonomy. However, in uncertain situations with contradictory information you should discuss with

the patient and relatives about the “pro” and “cons” of ICU admission, consider geriatric assessment including CFS. Many will in such situations consider an ICU “trial” with reassessment by day 2-3. Such an ICU “trial” should include all relevant treatments or otherwise it might be a self-fulfilling prophecy!

But…

… what if the patient, or her family, tells you that she has been diagnosed with an intestinal mass some weeks ago, which has not been further investigated yet? What if she is living alone, with the help to clean twice a week and for delivery of groceries, but because of her fear for falling, she never moves outside the house. She prefers not to have invasive ventilation, but is willing to use NIV or an oxygen mask. However, her son, who accompanies her to the hospital, tells you afterwards outside the room that he wants everything to be done for his mother. How would you proceed? We should reply to her son that we have to respect the patients’ autonomy, but will always provide optimal care to patients although non-beneficial care will omitted.

Table 1: questions that should be addressed when deciding to admit (or refuse) ICU admission for a critically-ill patient.

- What are the patient's and relatives' wishes?
- Information to characterize a critically-ill elderly patient
    - Comorbidities including cancer
    - Nutritional and functional status (ADL, IADL)
    - Frailty (CFS, Performance status)
    - Cognitive and psychiatric disorders
- Goal(s) of care
    - Probability of (long-term) survival
    - Probability of reaching (for the patient) acceptable quality of life
    - Treatments during the ICU Stay
    - Reassessment of the patient at day 2-3
- Hospital trajectory
    - ICU discharge location
    - Hospital discharge location
    - Burden for the family

Legend to table 1: ADL means "Activities of daily living" and IADL instrumental activities of daily living (IADL) scale. CFS means the Clinical Frailty Scale.

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