

THE RELEVANCE OF RECOVERY POTENTIAL IN THE DECISION-MAKING PROCESS REGARDING ELDERLY PATIENTS IN THE INTENSIVE CARE UNIT: A PERSON-BASED APPROACH

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Abstract

Due to the phenomenon of demographic transition, the amount of elderly individuals is on the rise. This is an enormous success for humanity, however it does imply some challenges for modern societies. As our population ages, the prevalence and burden of chronic diseases also increase, and these pathologies raise the frequency of admission of elderly individuals into intensive care units. According to literature, age and a subjective estimation of functional and mental status are some of the tools employed by physicians to define whether it is reasonable to admit a patient to the ICU. On the other hand, the usage of the recovery potential of an individual, allows estimation of the capability of restoring functionality after acute disease. Therefore we propose the assessment of such ability through a multidimensional, person-based approach in order to achieve the greatest benefit for patients and caregivers.

Keywords: Intensive Care, Elderly, Geriatric Assessment.

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Resumen

Debido al fenómeno de la transición demográfica, la cantidad de personas mayores está en aumento. Este es un enorme éxito para la humanidad, sin dejar de reconocer que implica algunos desafíos para las sociedades modernas. A medida que nuestra población envejece, la prevalencia y la carga de las enfermedades crónicas también aumentan, y así, estas patologías incrementan la frecuencia de admisión de personas mayores en unidades de cuidados intensivos. La edad y una estimación subjetiva del estado funcional y mental han sido algunas de las herramientas empleadas por los médicos para definir insuficientemente si es razonable admitir a un paciente en la UCI. Proponemos el uso del potencial de recuperación como una evaluación que permite determinar la capacidad que tiene cada individuo, independientemente de su edad, de restaurar su estado funcional después de una enfermedad aguda. Así, poder dirigir de forma adecuada las intervenciones por parte del equipo médico.

Palabras clave: Cuidados Intensivos, Ancianos, Valoración Geriátrica Integral.

1. Introduction

Due to the phenomenon of demographic transition, the amount of elderly individuals is on the rise. The number of people aged 65 and older has been increasing steadily, and is projected to double from 46 million today, to more than 98 million by 2060 [1]. This is an enormous success for humanity, and reflects medical advances as well. However, it does imply some challenges for modern societies. As our population ages, the prevalence and the burden of chronic diseases also increase [2-3]. Chronic diseases and their complications are associated with recurrent hospital admission and readmission [4-5]. Likewise, increased incidence of sepsis and high-risk surgery requirements [6] have been reported in patients with said diseases.

These pathologies raise the frequency at which elderly individuals are admitted into intensive care units, and these hospital stays tend to be quite expensive, particularly when they become recurrent [7-8]. Therefore, since the prevalence of chronic diseases in elderly individuals is higher than that of the rest of the population [3,6], it becomes imperative to optimize resources usage, while not forgetting that the patient's wellbeing should be paramount in all cases. The above

entails reclaiming the relevance of preventive medicine from the point of view of public health[9]. Therefore, a radical paradigm shift is required in order to include preventive medicine into daily practice.

For several centuries, healing has been considered medicine's only goal [10]. However, the medical act goes much further than "healing" or "saving lives". Rather, it entails seeking global wellbeing for our patients.

In this context, specialties such as palliative care and geriatric medicine become increasingly relevant, and geriatricians become an essential component of multidisciplinary medical teams for a variety of reasons, but mainly by serving as allies in decision-making processes in difficult scenarios. For instance, in an ICU context, the Integral Geriatric Assessment aids to obtain valuable information, which allows estimation of the recovery potential for each individual. Also, it can determine the benefit, relevance and impact of several interventions regarding wellbeing, quality of life and outcomes.

Along with all this, we decided to review the available literature regarding elderly patients admitted into intensive care unit settings, and particularly the factors taken into account by attending

physicians for initiating or limiting therapeutic effort in this group of patients. Thus, we would like to make an approach towards recovery potential and its implication on every day medical decision-making processes. We included articles published among years 1990 and 2017, comprising: elderly, intensive care and recovery potential as the main keywords. We did not make a restriction as for type of article included. The languages selected for this search were Spanish and English.

2. Recovery Potential: Definition

The recovery potential is defined as an individual's estimate capability of restoring and/or maintaining their functionality and abilities after recovering from acute disease [11]. Thus, recovery potential is useful when determining the potential benefit of medical interventions leading to the (at least partial) restoration of functionality of affected organs or systems, including neurological, mental and/or physical capabilities from baseline. Therefore, it becomes a reflection of the expected quality of life for patients [12-13].

3. Tools for determining the recovery potential through a multidimensional analysis

3.1 Integral Geriatric Assessment

There is no scale, formula or precise index created for establishing the recovery potential of an individual. On the contrary, this task requires a structured multidimensional analysis as the Integral Geriatric Assessment in which several relevant aspects such as clinical, mental, nutritional and functional status are taken into account [13].

3.1.1 Basal functional status

One of the most relevant items comprising the Integral Geriatric Assessment is the analysis of the basal functional situation. The Basal functional status indicates both the substrate and functional goal that could be accomplished after medical interventions. Also, an adequate basal functionality is a predictor for positive outcomes in elderly subjects undergoing stressful events [14].

3.1.2 Mental status

When defining recovery potential, an evaluation of the patient's basal mental status should be undergone in order to determine the impact of said status on their functionality. Also, the likelihood of recovery of mental functions after the acute event should be taken into account. The aforementioned becomes

relevant when considering which would be the appropriate behavior regarding patients with acute illness and diminished mental functions, such as in those with advanced dementia, or those in which recovery of basal functions seems very unlikely. So, in such cases, the multidimensional approach should be person-based, allowing quality of life and wellbeing to be sought.

3.1.3. Presence/absence of frailty

Frailty is a state in which the subject is less likely to respond adequately to stressful stimuli, and is therefore an important predictor for adverse outcomes [15]. This is not an uncommon situation in intensive care units [16]. However, age by itself does not seem to be a determinant variable for negative results [17]. Besides, it is imperative to make a differentiation between elder individuals and frail elderly patients in order to aid the decision-making process in this population group.

3.2 Interdisciplinary approach

As we have stated previously, the recovery potential is essential for an adequate decision-making process, and an interdisciplinary approach is required for it to be determined.

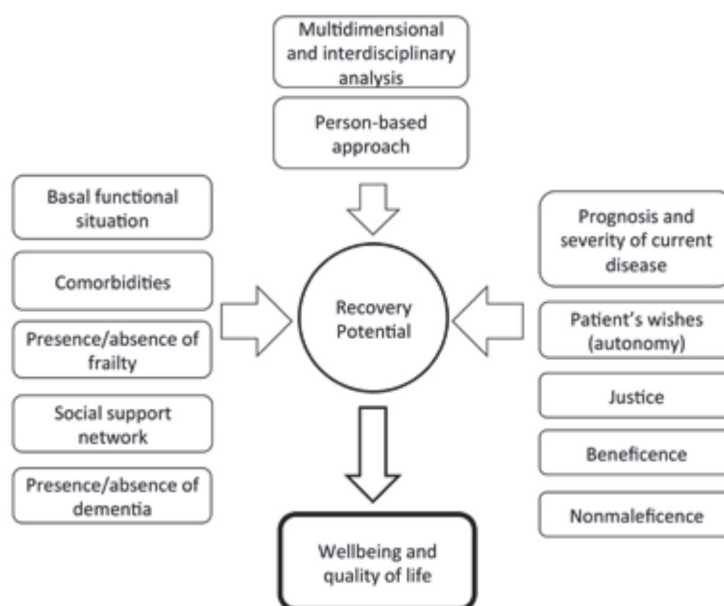
Therefore, teamwork among specialties, namely geriatric medicine and intensive care is extremely important in every-day clinical practice.

3.3 Ethical issues and advance directives

From an ethical standpoint, elderly patients generate challenges in clinical decisions regarding illnesses that put their lives at risk. These challenges are framed in a variety of conceptions on life, health and disease. The role that physicians and healthcare workers have as promoters

of wellbeing and providers for existing technology, should allow for the goal to be appropriate and accordant to the patient's wishes and expectations. The perceived quality of life by each patient, and an adequate adaptation to the ageing process may lead towards a definitive stand against medicalization of healthcare in elders. While, on the other hand, the uncertainty regarding both clinical and mental status of the patient after the critical phase generates ethical issues that become particularly relevant to attending physicians in the ICU (see figure 1).

Figure 1. Recovery potential



4. Clinical Cases

Case A

The first case regards a 91 year-old woman who had undergone a total hip replacement 18 months ago. The patient was admitted for several days of serous-purulent discharge arising from a fistula on the lateral side of the proximal third of her right thigh, associated to intense pain when moving said extremity. On arrival a basal score of 20/100 on the Barthel Scale was documented. At the time she had no subjective memory complaints or delirium. The patient was diagnosed with septic loosening of osteosynthesis materials at the joint replacement site, therefore, secretion culture was performed and specific antibiotic treatment was initiated. Afterwards, with a signed consent by herself and her family, she underwent an intra-operative revision of the joint where osteomyelitis and abundant hemorrhage were seen. Thus, she required transfusion therapy. In the immediate postoperative period, the patient displayed tachycardia, hypotension, respiratory distress and oliguria, which were refractory to intravenous fluid management. The patient was admitted to the ICU in order to initiate vasopressor therapy. Three days afterwards, vasopressors were withdrawn successfully and the patient was admitted to the regular

ward where she completed her recovery effectively. She displayed functional recovery demonstrated by a score of 50/100 on the Barthel scale two months after discharge.

Case B

The second case regards an 84 year-old man without relevant medical history who was admitted for a month of decreased functional capacity and a week of cough and atypical thoracic pain, associated to sensory disturbances. On arrival, a basal score of 100/100 on the Barthel Scale was documented. However, the patient had subjective memory complaints and delirium at the time. Also, at admission the patient was dependent on supplemental oxygen therapy. His contrast-enhanced chest computed tomography displayed a micro-nodular pattern associated to multi-lobar pneumonia. The patient had several risk factors for tuberculosis. Therefore, therapy was begun accordingly.

The patient had poor clinical evolution; he presented progressive tachypnea and hypotension, which required endotracheal intubation and admission to the ICU. Once there, the patient displayed mechanical ventilation dependency and severe acute respiratory distress syndrome in spite of adequate therapy. He underwent

a pulmonary wedge resection, which proved severe pulmonary fibrosis. The patient did not show any improvement; geriatric medicine, pneumology and intensive care specialists did not accomplish a successful extubation regardless of several attempts. Thus, the recovery potential was considered to be extremely low. The decision of limiting therapeutic effort was made by family members and attending physicians and an end-of-life therapeutic protocol based on comfort and symptomatic treatment was initiated.

5. Discussion

It is evident, that as time goes by, the amount of elderly individuals admitted into health care facilities is rising [18]. However, this situation becomes more relevant when considering admissions to the ICU [10]. Current technology allows a handful of interventions to be performed successfully, and these procedures usually aim towards keeping patients alive. Nonetheless, when regarding elderly individuals, it becomes imperative to take a closer look and consider that maintaining an elderly patient alive is not always a synonym of quality of life.

There are two main reasons for an elderly individual to be admitted into an ICU: elective surgery, which usually is associated to favorable outcomes

[19] and emergency surgery or acute medical illness, which seems to display worst outcomes in comparison [20-23]. This leads us to consider that, when addressing invasive procedures in the elderly, the recovery potential should always be included in the decision-making process.

The benefits for ICU admission in frail elders or patients over 80 years of age are not clear. For these patients, three options seem reasonable: First, Admission to a regular unit or acute care facility for the elders instead of an ICU; Second, Admission of selected patients to the ICU, while attempting rapid discharge; or Third, Reconsidering therapeutic approaches for severe medical diseases that are refractory to therapy, have a poor recovery potential or prognosis [23].

In our context, it is frequent for family members or other close relatives to request highly risky procedures in order to maintain life. Then, it becomes relevant to realize that not everything that is technically possible is ethically justifiable [10]. Performing this type of interventions on patients with less than ideal conditions, generates a higher rate of complications and eventually leads to higher morbidity and mortality rates [24-25] as well as a decreased quality of life of patients and their caregivers [10]. Limitation of therapeutic effort can be

seen as not initiating a treatment or as withdrawal of such [26]. However, limitation of therapeutic effort should not be understood as withdrawal of medical care [27]. This is when pain management and keeping close relatives near becomes imperative [10]. We must then consider that limitation of therapeutic effort in selected cases and avoiding futility as well as extreme unnecessary therapeutic measures should be sought under all circumstances. Thus, recovery potential should be employed for defining medical conducts. This allows humanized care as well as a better distribution of both human and economic resources, which becomes particularly relevant in the context of an ICU [7].

Nevertheless, avoiding extreme unnecessary therapeutic measures should be distinctly differentiated from falling into ageism (age-based discrimination), which leads to the thought that the mere fact of aging renders treating an elderly patient in the ICU, illogical [28-29]. The above is not an infrequent situation, since on top of ageism; objective studies displaying favorable results in this population are uncommon [30].

Age and a subjective estimation of functional and mental status, as well as of the recovery potential by physicians,

are some of the most considered variables when deciding to admit an elderly patient to the ICU [31]. Nonetheless, a conscious analysis by trained interdisciplinary teams, would allow increasing objectivity of said estimation. The decision of continuing treatment or instead, limiting therapeutic effort, should in all cases include the attending physicians, close relatives and the patient (should they be able to make decisions at the time) [27].

5.1 Discussion of clinical cases

Case A

In this case, the patient's basal functionality was decreased. However, the therapeutic analysis went further, taking into account that even with a low score on the Barthel scale, the current disease was reversible (good recovery potential). Therefore, quality of life would increase for both the patient and caregivers, by intervening said illness. The analysis of basal functionality requires a careful approach. Thus, an interdisciplinary team is required.

Case B

In this case we found a previously functional elderly patient who underwent severe acute disease with rapid deterioration associated to a

poor recovery potential, which was translated to minimum quality of life both in the immediate future and in the long run. Consequently, limitation of therapeutic effort was the best option in order to allow wellbeing and avoiding futile therapeutic measures that would have only prolonged suffering for both the patient and caregivers.

Conclusion

Estimating the recovery potential is a complex process and requires a multidimensional assessment and interdisciplinary analysis. It is a person-centered approach and cannot be based solely on scale scores or age. The main goal of this activity is to achieve the greatest benefit for the patient.

Conflict of interest/Competing interests: None.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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