

## Are Intensive Care and Dementia Incompatible?

Maia Goncalves A<sup>1,2\*</sup>, Costa S<sup>3</sup>, Morais J<sup>3</sup>, Dias R<sup>4</sup>, Bernardo S<sup>5</sup>

<sup>1</sup>Multipurpose Intensive Care Unit, Hospital de Braga, Braga, Portugal; <sup>2</sup>Institute of Bioethics, Universidade Católica Portuguesa, Porto, Portugal; <sup>3</sup>Internal Medicine Service, Hospital de Braga, Braga, Portugal; <sup>4</sup>Imunohemotherapy Service, Hospital de Braga, Braga, Portugal; <sup>5</sup>Hospital de Braga, Braga, Portugal

### ABSTRACT

Dementia is an increasingly relevant, recurrent, ethical and clinical challenge in contemporary medicine. The present study aimed to assess whether admission of these patients in intensive care units (ICU) should be considered or excluded. Clinicians (internists, intensivists and neurologists) were asked to answer this question, and also to rank the criteria they considered most relevant in refusing admission to an ICU.

For most doctors, dementia per se does not preclude admission in ICU. Functional reserve and degree of disability were the most important factors, followed by cognitive impairment and comorbidities. Family expectations and age were the least important variables when considering admission.

**Keywords:** Dementia; Functional dependence; Intensive care

### INTRODUCTION

Current medicine faces three major challenges: demographic, epidemiological (multiple morbidities) and technological, whereas bioethics assumes itself as the regulator of this new medicine. The approach to each patient must be adapted, as there are increasingly older patients with multiple pathologies. The numerous technical and scientific resources of current medicine imply that not everything that is technically possible is ethically correct. There are an estimated 50 million dementia patients in the world today, and this number is expected to double by 2040 [1].

Intensive care is a scarce and expensive resource, and ideally should only be admitted to ICU patients whose clinical cognitive impairment and already has some degree of dependence [2,3]. In ICU patients are subjected to invasive techniques that can lead to complications, and so, the decision to submit the patients to procedures when the likelihood of success in reversing the acute event is very low, must be a thoughtful decision [4]. A wrong decision in ICU admission clearly constitutes therapeutic obstinacy. Thus, clinical screening in this admission has an increased ethical dimension. The authors intended to evaluate whether, in Internists, Intensivists and Neurologists point-of-view, dementia should be an exclusion

criteria for admission in ICU. The opinion of patients was also collected.

### METHODS

A survey was applied during the month of June 2019 to 90 medical doctors. This group was characterized by age and medical specialty. There were 2 main questions: Are intensive care and dementia incompatible? (Yes; no; yes with restrictions); Order the following factors by grade of importance (1-most important; 6-less important) that most influence the decision to admit dementia patients to an intensive care unit (ICU): Age; Comorbidities; Physiological reserve; Grade of functional dependence; Grade of cognitive impairment; Family expectations.

The answers were analyzed in a group as a whole and according to age groups (<35 years; 35-50 years; >50 years) and to the physician specialties. Regarding question number 2, it was compared the median score of each item.

It was also applied a survey to 60 patients with the following questions: Should dementia patients benefit from all the treatments available? Should the grade of functional dependence influence the decision of treating patients in an ICU? These

**Correspondence to:** Maia Goncalves A, Multipurpose Intensive Care Unit, Hospital de Braga, 4710-243, Braga, Portugal, Tel: +351962535597; E-mail: antonio.maiagoncalves@gmail.com

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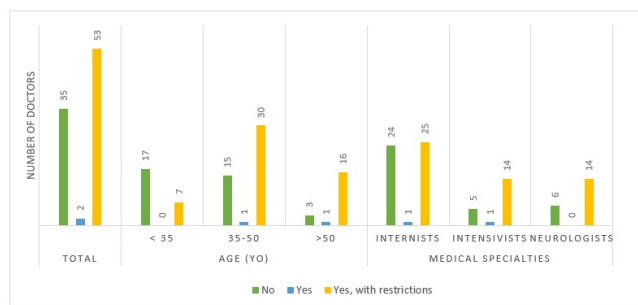
group answers were also analyzed according to the same age groups previously applied.

Statistical analysis was obtained from R Studio program.

Ethical and deontological principles referring to the best practice in recording and data analysis were respected through the entire study.

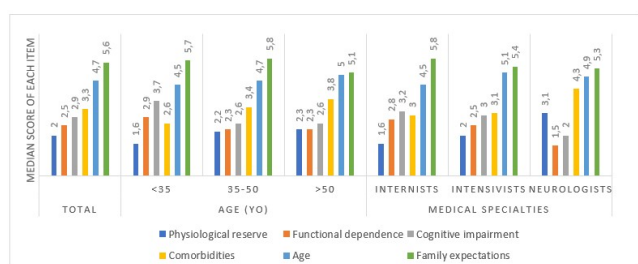
## RESULTS

Ninety doctors answered the survey: fifty internists, twenty neurologists and twenty intensivists. According to age, there were 35% (n=39) doctors under 35 years old (y), 28% (n=31) with ages between 35 and 50; and 18% (n=20) above 50 y.



**Figure 1:** Answered in a group as a whole and according to age groups and to the physician specialties, about admission of dementia patients in UCI.

Regarding question 1, the vast majority agrees that dementia, per se, it is not an obstacle to admit these patients in an ICU (Figure 1). Among the three age groups established there was statistical difference between older doctors (>35 y), which accept dementia patients in an ICU with some restrictions, and the younger group, that accepted it without any condition (p=0.003). There are no statistical differences when we evaluate question number 1 according to physician specialty (p=0.18).



**Figure 2:** Items by grade of importance (1-most important; 6-less important) that most influence the decision to admit dementia patients to an UCI, in a group as a whole, according to age groups and to the physician specialties.

In respect of question 2, the physiological reserve and grade of functional dependence were the most valued factors, followed by grade of cognitive impairment and comorbidities. Age and family expectations were considered less relevant parameters (Figure 2). Younger doctors value comorbidities more than older ones (p=0.005). In contrast, they considered grade of cognitive impairment less important (p=0.005).

Neurologists decision on admitting dementia patients is statically different from others specialties. Physiological reserve has higher impact on the intensivists and internists decision (p<0.001), as opposed to neurologists, which value more the grade of functional dependence (p<0.001).

Mean age of patients population inquired was 61.2 y, with only five subjects younger than 35 y, eleven with ages between 35-50 and forty four older than 50 y. This group did not considered dementia as an exclusion criteria to admission in ICU (n=55; 92%). Functional dependence should influence the kind of treatment available to dementia patients (n=37; 64%). There are no statistically differences on the opinion between age groups.

## DISCUSSION

First of all, the results highlight the fact that, regardless of the medical specialty or the doctor’s age, dementia itself should not be considered as an exclusion factor for intensive care admission. Patients also share this opinion. Some studies have demonstrated that dementia, for example in trauma context, does not result in increased mortality in admitted patients in ICU [5]. In patients with sepsis, the presence of dementia is an increased risk factor for mortality and severe multi-organ dysfunction [6,7]. Some studies suggest that the presence of dementia in critically ill patients implies an increased risk of mortality [8,9]. However, more recent studies have concluded that the use of invasive ventilation in these patients, resulted in lower mortality than in patients of the same age without dementia [10,11]. The same authors suggest that these results are due to a more effective clinical trial when dementia is present on elderly patient. That is, in dementia patients, if other variables are properly valued in the clinical triage for ICU, invasive ventilation is adequate. Indeed, in the survey, the assessment of functional reserve and the grade of functional dependency were the most valued, and only then, the cognitive decline along with comorbidities. However, the functional reserve is not always easy to assess, particularly in the acute and severely ill patient. If the patient has cachexia and there is an established etiological diagnosis, there will be no doubt in refusing admission. But in a rapid clinical evaluation that is imposed, the patient seems thin, without muscle mass, and have no clear cause for this condition, the decision of admission in IC, has added difficulty. “Frailty scales” available are not validated, nor are easily applicable in an emergency scenario [12]. Therefore, although it is scientifically easy to rank the different variables in the evaluation of clinical screening for ICU admission, in emergency situations that require a quick decision, these hierarchies are not so clear. It is possible to see that within the subjectivity of the decision, there are objective criteria, namely in terminal stages of oncological diseases, but also in other chronic diseases, and with increasing frequency, namely in heart failure, respiratory insufficiency, renal failure, and so on. In 2016, “guidelines” for clinical triage of intensive care admission were published in the Critical Care Medicine [13]. But the specificity of each patient, given the complexity and diversity of clinical situations, makes it difficult to apply these guidelines. An example of this fact was a study published in 2019 in the same journal, in which eight hypothetical clinical histories were distributed to a group of intensivists to conduct

clinical screening for IC admission, result in a wide disparity of results and opinions [14]. It is in this context, the fact that respondents do not consider that the presence of dementia per se is not an exclusion factor for ICU admission, becomes more relevant. Contrary to what happened two decades ago, there is no predisposition to refuse these patients in ICU. Dementia will probably be seen in the future, as just another organic failure to be considered in triage clinical. It would not make sense that a patient with dementia, but with a sufficient physiological reserve to support intensive care interventions should not be entitled to ventilator support on a context of pneumonia, because it is a potentially reversible situation. Admittedly, a patient with significant cognitive impairment, totally functional dependent, and without physiological reserve, would be questionable admission to ICU. As it would be, if the patient has a COPD, already with severe functional limitation. What does not seem ethical or clinically acceptable is that dementia can in some way be a discriminating factor of attention and care.

As the disease progresses, patients with dementia are unable to make decisions, and often even to communicate. The required level of permanent needs makes the use of continuing healthcare units also frequent. An in the later stages of the disease, there are questions that arise, namely when to consider the disease already in a terminal stage and what are the interventions and restrictions ethically and clinically place. There are discussions in some countries about the role of physician-assisted suicide and euthanasia in the care of dementia. In Netherlands, it has been studied whether it would be appropriate to allow an individual, as early as the early stages of dementia, to require euthanasia [15]. In Portugal, a bill to legalize euthanasia was failed in 2018. It is therefore urgent to support these patients, and to encourage the establishment continuing healthcare units for the advanced stages of the disease to provide them comfort and dignity in end-of-life care (EOLC), and not to focus on extending their life span. It is our understanding that some intensive care admission applications in patients with very advanced dementia only occur because of the absence of adequate care units. In a study published in 2009 (15th of October), on the online edition of the NEJM, Dr Susan L Mitchell and colleagues warned that dementia was a chronic disease that evolved into a terminal illness, and the failure to recognize this, implied depriving an adequate palliative care to these patients.

The answers recorded in this survey are therefore interesting, because they suggest that doctors in these days integrate dementia like any other nosological entity.

The results showed that Neurologists, when compared to Internists and Intensivists physicians, have different admission criteria for ICU admission. These differences are thought to be influenced by, the speciality where the patients is regularly followed and by each of the different medical background. The physiological reserve has a greater impact on the decision of Intensivists and Internists, as opposed to Neurologists who value more the grade of functional dependence. Despite the results obtained in the survey, in clinical practice, more important than the hierarchization of these factors is a team discussion for a better decision.

Family expectation and patient age were the variables least valued by the inquired. In dementia, the patient's autonomy would be represented by the family. Ideally, it would be desirable that at an early stage of the disease the patients express the kind of treatment they want to endure. This has nothing to do with vital Testament, but rather what is called advance care planning. It is intended to ensure that the patient will receive, during the severe and chronic illness, the treatments that go in consideration with their values, preferences and goals. However, it is estimated that less than 40% of people with dementia expressed it [16]. It would be desirable for doctors to encourage patients in the future to do so, which would constitute an important variable to consider in the context of clinical admission triage for ICU. If the patient had expressed his refusal with this level of care, the request for admission would not even been considered.

Finally, it is also worth analyse that the interviewed considered age to be one of the least relevant criteria in the ICU admission for dementia patients. It obviously constitutes a paradigm shift. Until the end of the last century, the admission of older patients was generally perceived as less adequate [17,18].

Nowadays, an aging population tendency has created a demand for an increase in ICU capacity. The number of patients over 75 years admitted to ICU increased over the past decade, as has the type of care for these patients. In Portugal, this age group population doubled between 2005 and 2015 [19]. From the experience gained in the care of older ICU patients, it was essentially concluded that more careful triage results in a significant decrease in mortality [20]. Some studies tried to define objective methodologies to improve the decision-making process, but this has not yet been achieved [21]. The Eldicus study, conducted by the European Intensive Care Society, concluded that "physicians should consider changing their ICU triage practices for the elderly" [22].

## CONCLUSION

The increasing number of dementia patients makes this nosological entity more clinically and ethically pertinent. It's essential to rethink and optimize the strategy to approach these patients, not only medically, but also in society in general. Dementia infers dependence and vulnerability. It is important that doctors encourage these patients to set up "early care planning" in a timely manner to ensure respect for their autonomy. Therefore, dementia should be considered a chronic disease, and weigh on admission to ICU like other chronic diseases and cannot, in itself, be considered to prevent admission.

The survey that took place in some hospitals of northern Portugal concluded that the doctors and patients interviewed do not consider the presence of dementia as an exclusion criterion for admission in ICU. Patient admission in ICU is a complex decision. Studies have shown that the treatment of dementia patients in intensive care, as long as clinical triage is effective; do not present a higher mortality rate than other patients. In this survey it was also concluded that a low physiological reserve and grade of functional dependence are more important factors than dementia in a decision to refuse admission in ICU.

Finally, patient's age was one of the least relevant items in the judgment for ICU admission.

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