Beyond Semantics: ‘Disproportionate Use of Intensive Care Resources’ or ‘Medical Futility’?

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Introduction

Patients suffering from acute and life-threatening dysfunction of one or more vital organs are commonly treated in an intensive care unit (ICU) using advanced resources. The use of these resources is usually highly valued by most stakeholders as appropriate and timely (Fig. 1). However, the goal of intensive care is not the use of advanced resources but to use these if needed to achieve complete restoration of prior physical and mental health status, or an acceptable quality of life. However, significant comorbid conditions are already present on admission in more than half of ICU patients [1], resulting in a prolonged ICU stay, significant morbidity and mortality and increased associated costs. Surviving patients are frequently faced with decreased quality of life and debilitating morbidity. Over the past two decades, the use of life-sustaining measures has increased significantly in ICU patients including those with chronic and irreversible organ dysfunctions, debilitating comorbid conditions and/or altered quality of life [2–4]. In trying to reverse the acute organ dysfunction on top of already present morbidity we increasingly use costly and scarce resources with questionable benefite. This can, in contrast to the appropriate use of resources, be judged as inappropriate. Although it seems logical and desirable to avoid this, intensivists are often reluctant to withhold or withdraw

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life-sustaining measures. Most frequently this is related to the uncertainty of the prognosis, doubt whether the provided care is beneficial or not, or because patients or family members urge them to start and continue even the most aggressive treatment. However, the clinical situation of the patient and/or the emotional condition of the relatives may limit the ability of clinicians to adequately identify patients’ preferences and values, before or shortly after ICU admission. In addition, one third of
the relatives cannot correctly reflect the wishes of their loved-ones [5] and underestimate the quality of life of their loved one [6].

Frequently it takes several days after starting invasive care treatment before ICU clinicians learn from the relatives that this may be at odds with patient’s values, should she/he have been able to express her/his own wishes. Clearly, none of the stakeholders benefit from this growing and worrying situation as inappropriate care compromises patient dignity and, in addition, represents harm. Moreover, the relatives may be exposed to guilt and complicated grief [7].

Although the above outlines a current and urgent problem, delivering non-beneficial ICU care is already a longstanding problem. Already a decade ago, 73% of European ICU physicians and 87% of Canadian ICU physicians declared that they frequently admitted patients with unrealistic perspectives [8, 9]. In a prevalence study, 27% (445/1,651) of the physicians and nurses stated that they had cared for at least one patient receiving disproportionate care [10], and 60% indicated that similar situations were rather common. Due to the increased use of technical life-sustaining measures, spontaneous death has become rare in the ICU, and a decision to withhold/withdraw life-sustaining measures is frequently made in the anticipation of death [11, 12]. Different cultural, ethical, financial, and legal frameworks that prevail in various countries, often lead to delayed end-of-life decision-making [13, 14]. In-depth psychological factors in each individual decision-maker (physicians, nurses and surrogates) worsen the actual picture [15]. This results in unnecessary patient suffering and relatives’ burden given rise to loss of dignity in the dying process [16, 17]. In addition, conflicts between staff and family and within the ICU-staff, moral distress, compassion fatigue and burnout among physicians and nurses, lead to huge staff turnover [10, 18, 19]. These elements as well as many others plead for avoiding inappropriate care.

Resources on the ICU include several care components. First, they include the unit (building, including heating and air conditioning/filtering), and material facilities (beds, equipment [e.g., monitoring, mechanical ventilator, dialysis, extracorporeal membrane oxygenation (ECMO), and medication pumps], invasive tools [e.g., catheters, medications, infusion fluids and the use of other services [e.g. laboratories, administration, and radiology]). Second, they contain the costs of the care-providers (physicians, nurses, physiotherapists, etc.). The sum of these resources is essentially to decrease the risk of death of patients admitted to the ICU with life-threatening conditions [20].

To improve decision-making, stimulate constructive deliberation and facilitate the ICU experience for all parties involved, we propose to change terminology and define different categories of use of ICU resources.

‘Inappropriate’ Use of ICU Resources

Appropriate use of these ICU resources is adequate, timely and proper following moral standards and codes of the professions. Inappropriate use of ICU resources therefore can be defined as ‘not proper’ or ‘untimely’. Inappropriate use of ICU
resources includes disproportionate use of ICU resources as ‘excessive, too much, or more than enough, but also as ‘not enough’, and ‘futile use of ICU resources’, and even ‘unlawful use of ICU resources’ (Fig. 1).

‘Disproportionate’ Use of ICU Resources

Proportionate use of ICU resources could be defined as care that reduces a patient’s risk of death in acute and life-threatening conditions. Improving or restoring quality of life by avoiding long-term physical or mental sequels is also ‘proportionate’. However, disproportionate use of ICU resources is perceived by most health care providers, patients and their relatives, and/or society as disproportionate and/or out of balance, in relation to the condition of the patient or the expected outcome or reduction in risk of death of the patient.

Patients can be ‘too good’ or ‘not sick enough’ to be admitted to the ICU [21] or the use of ICU resources can be ‘not enough’ in terms of inadequate treatment (Fig. 1). Inadequate treatment can take place due to incompetence of the physician, due to financial reasons or at the explicit request of the patient. On the other hand, in extreme situations some interventions can be proportionate while others are disproportionate in the same patient (e.g., an artificial heart may be disproportionate, but ECMO proportionate), whereas in others both may be disproportionate. More prevalent, disproportionate use of ICU resources is judged as ‘too much’ or ‘more than enough’. In only a small proportion of the cases can the inappropriate use of ICU resources be judged as futile, in the sense of ineffective or pointless. Another small part of inappropriate use of ICU resources can be judged as unlawful (e.g., when used against the will of the patient, Fig. 1).

So, in contrast to earlier publications on end-of-life issues where futility of care/use of resources has been introduced, the use of the terms inappropriate and disproportionate use of ICU resources would be a better reflection of current ICU practice.

Medical Futility

Medical futility as a concept and the use of the term ‘futile care’ is controversial and troublesome. In the ICU, futile care can be defined as the initiation or prolongation of ‘ineffective, pointless or hopeless’ use of ICU resources. Therefore, medical futility is by definition inappropriate. However the inappropriate or disproportionate use of ICU resources does not need to be futile (Fig. 1). An example of medical futility would be the use of mechanical ventilation in a brain dead patient who is not an organ donor. Medical futility in this definition is rather rare in the ICU.
'Non-beneficial Treatment'

Another frequently used term is non-beneficial treatment, which is defined as treatment that is not expected to cure or ameliorate the disease state and not expected to improve or restore patient’s quality of life to a satisfactory level [22]. It is a synonym of futile.

Disproportionate Use of ICU Resources in the Sense of ‘More Than Enough’

Others than the patient and/or her/his relatives can judge the use of ICU resources to be ‘more than enough’ if the prolonged use is not in the patient’s best interest. Physicians involved in the care of patients with severe organ-failure should question themselves if there are medical interventions used in these patients that they can label as disproportionate because they, the nurses, or relatives of the patients are sufficiently confident that the interventions will not be beneficial. Excessive resources are sometimes used to provide life-sustaining medical care at the end of life frequently associated with a poor quality of death [21]. Especially in older patients and in patients with multiple comorbidities, this could be labeled as ‘too much’ or ‘more than enough’.

Because we have the possibility and the resources to postpone and orchestrate death for a, sometimes, indefinite time, we have the moral responsibility to deliberate whether the continued use is still in the best interest of the patient. Alternatively, we should question ourselves whether admission to the ICU is primarily in the patient’s interest.

Disproportionate Use of ICU-resources in the Sense of ‘Too Much’

The initiation or prolongation of the use of ICU resources is ‘too much’ and thus disproportionate care if (Fig. 1):

1. The condition of the patient is known to be reversible, however,
   a. patient is ‘too good’, ‘not sick enough’ to legitimate ICU admission;
   b. it is certain or nearly certain that the treatment will not achieve the goals that the patient has specified or is against the will of the patient (e.g., advanced directives);
   c. further treatment and rehabilitation after ICU discharge will require a social network that is not present or cannot be organized;
   d. severe or multiple underlying comorbidities are highly likely to compromise recovery (see bullets 2a and 3).
2. The condition of the patient is irreversible or has become irreversible (according to current knowledge) during the ICU stay (i.e., cannot be solved by advanced ICU support even after a prolonged attempt):
a. No effective treatment is available or the prolonged treatment has no real pathophysiologic rationale (anymore). Patients can be admitted for an intervention, but the use of resources is restricted (e.g., patients with advanced chronic obstructive pulmonary disease [COPD] can be admitted to receive non-invasive ventilation, however, neither resuscitation nor mechanical ventilation will be offered in case of further deterioration); we can even imagine giving in-ICU non-ICU care just to help prevent the patient becoming critically ill.

b. Effective treatment is available, however, the patient is not responding to therapy, even when treatment is at its maximal level and it is not plausible anymore to assume that cure will occur (e.g., in a patient with acute respiratory distress syndrome [ARDS] with refractory hypoxemia despite a trial of corticosteroids).

c. Effective treatment has already been given to the patient with no or only minimal response (marginally effective interventions).

3. The condition for which reason the patient was admitted is resolved; however prolonged life-sustaining treatment can only be delivered in an ICU (e.g., in cases of failure to wean from mechanical ventilation in an otherwise stable situation with no indication or possibility of ventilation outside the ICU).

4. It is certain or nearly certain that the treatment will not achieve the goals that the patient has specified or is against the patient’s will (e.g., in patients with advanced directives).

Why Not Use the Concept ‘Medical Futility’ or the Term ‘Futile Care’?

1. Contrary to the term ‘futile care’, ‘disproportionate use of ICU resources’ entails a potential bidirectional discrepancy between the administered care and the prognosis: this may be ‘not enough’ or ‘too much’/‘more than enough’. Although ‘disproportionate’ as ‘not enough’ is rare on the ICU [10], it is necessary to consider this aspect as well, as both situations may arise for different health care providers caring for the same patient (e.g., nurses may judge the situation as ‘more than enough’, whereas the physicians still sees opportunities for the patient) [23].

2. Disproportionate use of ICU resources is determined by the patient’s wishes, a surrogate’s report of the patient’s preferences and values, severity of illness, comorbidity, response to (previous) treatment, life expectancy, quality of life, costs of use of ICU resources and cost of long-term follow-up for society, in which the burdens outweigh the benefits.

Futile interventions are determined by only one factor, which is the patient’s (estimated by the doctor) expected prognosis or course of the condition [24].

3. ‘Futile care’ presupposes a high degree of certainty regarding the final fatal prognosis, as the term implies that the patient will die, despite this care. However, this term does not take real life situations into account, such as the difficulty
to predict an individual patient's survival. This is a common situation in the ICU, where the use of life-sustaining technology (e.g., mechanical ventilation, vasoactive medication, ECMO, continuous veno-venous hemofiltration [CVVH]) virtually excludes a patient's spontaneous death [11, 12]. On the other hand, withdrawal of life-sustaining measures in a patient who is dependent on these measures can lead to the self-fulfilling prophecy that the treatment was futile, judged from the fact that the patient died after withdrawal [25–29].

4. ‘Futile care’ does not take into account that physicians and nurses have an evolving opinion concerning a patient's prognosis and burden during the course of treatment. Frequently, nurses consider care as futile much earlier than does the physician [30] depending on the patient's evolution, among other things. They are also sometimes more pessimistic [23]. In this respect, the proposed terminology recognizes another phase than futile care: these are situations during which the physician or nurse starts to doubt whether the level of care they are administering is still proportionate. An open and honest communication within the team is necessary to acknowledge the situation of disproportionate care as perceived by one of the healthcare providers. This is the first step to reach a consensus between all parties involved.

5. Every physician's or nurse's view of a specific situation is influenced by his/her reflection of his/her emotional past, cultural background, sex, clinical context, family requests and moral consciousness, formed by education, socialization and conscious moral consent [31, 32]. In practice, the term ‘futile’ care applies only as an absolute term when different expert health care providers agree that care is provided in a pointless, hopeless situation.

6. Futility does not recognize all the palliative care and comfort measures that should be maintained when life-sustaining measures are withheld or withdrawn (e.g., care after death of the patient, family conferences, as well as informal compassionate care).

7. Futility can be a source of family guilt during bereavement [34].

When the use of ICU resources is deemed inappropriate, two possible scenarios are possible:

1. It should be withheld or withdrawn. The most important reason to do this is because it prolongs unnecessary suffering by the patient and his/her relatives and loss of dignity. Furthermore, prolonging scarce and costly medical care without prospect is unjust. Third, prolongation of inappropriate use of ICU resources can lead to compassion fatigue, burnout and high staff turnover in health care providers. Fourth, prolongation of inappropriate use of ICU resources can be seen as a violation of ethical principles, such as nonmaleficence, beneficence and justice.

2. Inappropriate use of ICU resources can be prolonged in some cases, but only for a short period of time, in accordance with the patient and her/his relatives. This period should be used as time to help the patient and relatives accept that prolongation of the use of ICU-measures is out of proportion and thus inappropriate.
Conclusion

We propose the use of ‘disproportionate use of ICU resources’ instead of ‘futile use of ICU resources’. This is beyond semantics. Contrary to the term ‘futile care’, ‘disproportionate use of ICU resources’ entails a potential bidirectional discrepancy between the administered care and the prognosis: this may be ‘not enough’ or ‘too much’/‘more than enough’. Disproportionate use of ICU resources is determined by a patient’s wishes, a surrogate report of patient’s preferences and values, severity of illness, comorbidity, response to (previous) treatment, life expectancy, quality of life, costs of use of ICU resources and cost of long-term follow-up for society, in which the burdens outweigh the benefits. Futile interventions are determined by only one factor, which is the patient’s (estimated by the doctor) expected prognosis or course of the condition.

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