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## Has survival increased in cancer patients admitted to the ICU? We are not sure

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We are committed to providing a balanced answer on the reality of improved survival in critically ill patients with cancer. By defending the pro viewpoint, Mokart et al. [1] may be right in claiming that survival in cancer patients in general and more particularly in those with hematological malignancies has increased over the past decade. As recently reported in a prospective study including more than 1,000 hematological patients admitted to 18 ICUs from a French–Belgian network [2], overall mortality was 50 %, but more important were mortality rates in the sickest subgroups: 60 % in the case of either one vital organ failure (need for ventilation, vasopressor, or dialysis) or two vital organ failures if reversible within 7 days. Congruently to this finding, mortality rates in severe sepsis and septic shock (the most common complications in this population [3–6]) were 34 and 46 %, respectively, approaching the figures in the non-cancer

population. More recently, a large multicenter study using data from the Dutch National Intensive Care Evaluation (NICE) database published in this journal indicated that 60-day mortality in patients with hematological malignancies was similar to that in solid cancer patients and also in patients with other more classical severe comorbidities such as chronic heart failure, liver cirrhosis, and chronic pulmonary obstructive disease (COPD) [7]. In other words, triage decisions solely based on the type of underlying comorbidity is becoming obsolete. By defending the con viewpoint, Pène et al. [8] somewhat attenuates this optimism by focusing on the fact that current survival rates are still based on studies performed in heterogeneous populations coming from different centers with different experiences and cultures. Therefore, it seems naïve to recommend broad ICU admission policies or full code status for any patient with cancer and acute organ dysfunction. Strikingly, Pène et al. also shrewdly claim that for the same reasons, routine denial of cancer patients carrying one or several poor prognostic factors would be inappropriate as none of those are specific enough to predict non-beneficial care. At the end of the day, the question remains how we can move forward at the bedside to integrate these results into a genuine decision-making process so as to maintain or even improve long-term outcome in these patients without only prolonging the dying process? Indeed, the reality of physical and emotional suffering of critically ill cancer patients [9] and their relatives [10] cannot remain unrecognized.

Mokart et al. [1] ascribe recent survival benefits mainly to earlier and better supportive care provided to a more selected patient population with less comorbidities and a better performance status. It is true that ICU admission within 24 h of hospital referral has been associated with improved outcome [11]. The complex relationship between time to ICU admission and mortality has been recently investigated in a study published in this journal

[12]. Herein, when medical intervention occurred within 1.6 h of the first physiological derangement, mortality was about 30 %, increasing to 55 and 80 % when medical intervention occurred between 1.6 and 4.7 h, and later than 4.7 h, respectively. These findings may be even more relevant in the case of acute respiratory failure or septic shock where mortality varies between 34 and 50 % in highly skilled centers [2–6, 13] and 66 and 68 % in general ICUs [14, 15].

Interestingly, both Mokart et al. [1] and Pène et al. [8] highlight that we need to learn how to make appropriate triage decisions taking into account the burden of aggressive intensive care, expected short-term outcomes, cancer outcomes, and long-term outcomes. This requires, however, much more than pure medical skills or scientific knowledge.

The ICU can in some countries be used to provide palliative interventions [16] or non-ICU care [17]. Therefore, the goals of care are clear and patient management can easily be communicated to every stakeholder. Otherwise, clinicians managing patients with cancer have to make decisions of full code ICU management or ICU trial being aware that prognostic uncertainty is the rule [18] and the decision to admit or not is based on contextual criteria. That we should first explore the preferences and/or expertise of all parties involved is rather straightforward. The challenge is then to communicate using words that both provide honest and easy-to-understand information, and at the same time empower every stakeholder to voice concerns and express different experience, offer unexpected options or sound alternatives [18]. Good leadership implies implicitly that we should dare to take decisions more closely in tune with our senses and emotions [19]. Both the current scientific evidence enumerated in this pro–con debate and a certain degree of emotional contamination will be mandatory if we want to effectively anticipate the potentially harmful side effects of inappropriate decisions (Table 1). In daily

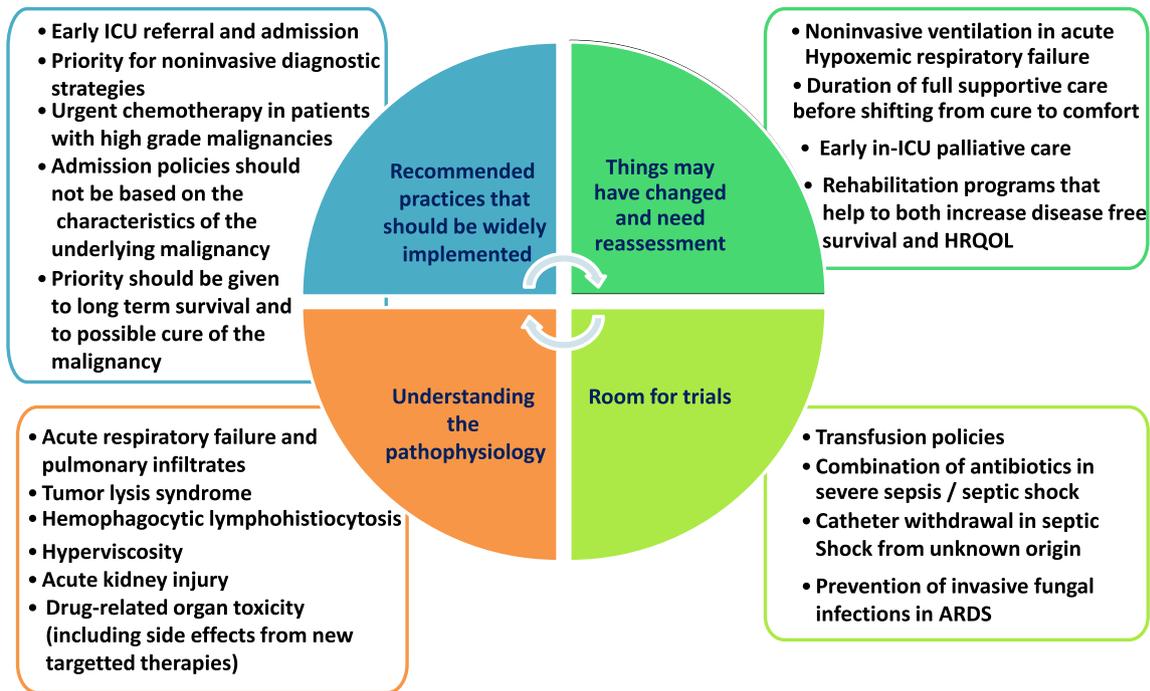
practice otherwise, discussions are not patient-centered enough and too often turn into a power struggle between healthcare workers. Routinely neglecting the heart of our mission, avoiding discussions and debate, and pursuing inappropriate life-sustaining treatments in patients who will not benefit are exactly what we should not do. Conducting an ICU trial remains a delicate task in which communication and shared discussions and decisions are the key for providing optimal care. Unless supported by objective arguments and well communicated to the relatives and the team, such “wait and see” policy is common [18, 20], but may be unfair given the detrimental effects on the patients, relatives, healthcare providers, and society [21].

In summary, we are not completely sure whether survival actually increased in critically ill cancer patients, mostly because there is a risk that patients who were dying in the 1980s and 1990s would no longer be referred to the ICU by hematologists and oncologists, and because no data are available on these aspects. Other possible explanations for this improvement are provided in Fig. 1. Still, we want to see the pro arguments for making the decision to admit patients to the ICU, and take into account the con arguments when after several days patients show no improvement, or maybe deterioration [22]. After an ICU trial, every decision needs to be made after a careful and individual evaluation of the short-term chances of survival, long-term cancer outcomes, and long-term outcomes of organ dysfunction [22]. Then, communication with the relatives and the ICU team must balance the dismal chances for long-term survival and prolonging a painful dying process. Improving decision-making and enhancing intra- and interdisciplinary communication and collaboration remain the best way to make a decision in a context of uncertainty, and then adapt the therapeutic project to the patient’s evolution. Widely opening the doors of ICU to cancer patients should not be a way to avoid providing non-beneficial

**Table 1** From scientific evidence to the bedside: 10 most relevant things intensivists should keep in mind during triage decisions in cancer patients

1. In cancer patients admitted to the ICU, characteristics of the malignancy are no longer associated with short-term mortality
2. Classic predictors of mortality (i.e., neutropenia, autologous BMT, physiologic scores) are not relevant anymore
3. Current mortality in specialized centers is 60 % in the case of one organ failure (need for ventilation, vasopressor, or dialysis) or two organ failures if reversible in less than 7 days
4. Current mortality of severe sepsis and septic shock in highly skilled centers is 30–40 % in the case of non-pulmonary origin and 50–60 % in the case of pulmonary origin in contrast to more than 65 % overall in general ICUs
5. Delays in ICU referral and admission are associated with increased mortality
6. Intensivists are usually overpessimistic regarding short- and long-term outcomes
7. Hemato-oncologists are overoptimistic regarding short- and long-term outcomes
8. Postponing EOL decisions increases the physical and emotional burden of patients and relatives
9. Triage and EOL decisions are an inherent part of an intensivist’s duties
10. Prognostic uncertainty is the rule, but we can improve outcome prediction by sharing decisions with all stakeholders inside and outside the team and by taking decisions more closely in tune with our senses and emotions

ICU intensive care unit, BMT bone-marrow transplant, EOL end-of-life



**Fig. 1** Possible explanations for the reported increased survival in critically ill cancer patients

care as it will ultimately result in making more decisions of withholding and withdrawing life support, sometimes in a more conflicting atmosphere and after having provided inappropriate care.

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