

Palliative Medicine in the Surgical Intensive Care Unit and Trauma

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KEYWORDS

- Palliative care • Trauma • Surgical intensive care unit
- End of life • Family support • Communication

Palliative Medicine is a new discipline that focuses on all aspects of a person in relation to medicine: physical, spiritual, and emotional. The purpose of palliative medicine is to prevent and relieve suffering and to help patients and their families set informed goals of care and treatment. Palliative medicine can be provided along with life-prolonging treatment or as the main focus of treatment.

The intensive care unit (ICU) plays a prominent role in medical care in the United States today. National data suggest 30% to 40% of all patients admitted to the ICU will die while in the ICU or before hospital discharge, and 22% of all deaths in the United States now occur in or after admission to an ICU. Palliative medicine has an increasing role and presence in the ICU. The purpose of this article is to discuss the growing and essential role of palliative medicine to comprehensive patient-centered care in the surgical intensive care unit (SICU) and trauma.

LONG-TERM OUTCOMES IN SICU AND TRAUMA

In the past several years, studies have begun to address the long-term outcomes of patients following ICU admission. Wunsch and colleagues¹ looked at 35,308 Medicare ICU subjects who survived to hospital discharge. They noted that ICU survivors had higher 3-year mortality (39.5%) than hospital controls (34.5%). ICU subjects who had received mechanical ventilation had substantially increased mortality at 3 years (57.6%). Most of the ventilated subjects died in the first 6 months after ICU admission (30.1% vs 9.6% for hospital controls). They concluded that an increase in mortality was present for 3 years after ICU admission.

In Australia, Williams and associates looked at all adult subjects admitted to the ICU who survived to hospital discharge.² They noted the risk of death for these

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subjects was higher than the general public for 15 years after ICU admission. They concluded that an episode of critical illness, or its treatment, may shorten life expectancy.

In Germany, Schneider and colleagues³ looked specifically at long-term survival after surgical critical illness. They followed 1462 subjects with an ICU stay of greater than 4 days, until the end of the second year after ICU admission. Of the 1055 subjects (72.0%) discharged from the ICU, 808 (55.3%) survived 6 months, and at 2 years 648 (44.3%) subjects were alive. They concluded that survivors of surgical critical illness suffer from a post-ICU syndrome. They stated, "specific sequelae of critical illness may create a defined constellation of signs and symptoms that are both directly attributable to the episode of preceding critical illness and responsible for morbidity and mortality beyond the underlying disease."³

Dialysis is a frequent intervention started in the intensive care unit setting. As the population grows older, so does the age of patients in the ICU; more patients are being admitted from nursing home settings. Tamura and colleagues⁴ studied hospitalized subjects in nursing homes with end-stage renal disease and the initiation of dialysis. At 12 months after initiation of dialysis, 58% of these subjects had died and predialysis functional status was maintained in only 13%. These were subjects with single-organ failure at the start of dialysis. Often ICU patients have multiple-organ failure, of which renal failure is just one component, supporting the poor outcomes of these patients after the initiation of dialysis.

In Norway, Halverson⁵ recommends that discussions about starting dialysis in the elderly population should involve the health care team and patients. He suggests a transparent discussion, involving the difficult decisions of withdrawing and withholding dialysis, should occur before initiation of dialysis. He also states that medicine tends to focus on the technical aspects of dialysis and neglects the overall needs of patients. Furthermore, consent involves only the technical components of the procedure and not in the context of overall outcomes of patients. This trend of technical procedural-based consent, rather than contextual informed consent is more common in elderly patients because the complexities of their needs are greater than younger patients.

Increasingly, hospitals and ICUs have been using long-term acute care hospitals (LTACs) to facilitate recovery from a critical illness. However, the outcomes of these patients being transferred to LTACs are rarely communicated to the patients and families. The 1-year survival of Medicare beneficiaries transferred to an LTAC is 52%.⁶ In their study, Kahn and associates commented that we need strategies "to improve both prognosis and communication about prognosis to ensure decision makers do not have unreasonable expectations surrounding long-term acute care."⁶

Regarding trauma patients specifically, in New Jersey, Livingston and associates⁷ evaluated the long-term outcomes of trauma subjects admitted to the SICU. They contacted 100 subjects who experienced trauma with ICU stays greater than 10 days. A total of 81 subjects were men with a mean age of 42 years. Traumatic brain injury was present in 50 subjects. The mean follow-up was 3.3 years from discharge. They noted that only 49% of subjects were back to work or school following injury. They noted ICU survivors greater than 3 years after severe injury have significant impairments, including inability to return to work. They stated, "The goal of reintegrating patients back into society is not being met." They concluded that although survival is an important outcome after injury, it is not a sufficient outcome to measure success of a trauma center.

DO NOT RESUSCITATE AND THE ICU

Physicians tend not to discuss do-not-resuscitate (DNR) orders with their patients. In New York, Sulmasy⁸ surveyed doctors about their attitudes and confidence regarding DNR discussions. They noted physician confidence regarding DNR discussion is low compared with other medical discussions, such as procedural consent. They concluded that this lack of confidence in physicians having these discussions may contribute to the low occurrence rate of these conversations. Their study again supports the data that physicians' conversations with families tend to focus on technical aspects of treatment as opposed to long-term outcomes and contextual conversations based on goals of care.

Cardiopulmonary resuscitation (CPR) in an ICU setting is rarely effective in providing long-term survival and survival to hospital discharge. Myrianthefts and colleagues⁹ looked at subjects (111 total) who underwent CPR in an adult ICU. The 24-hour survival of subjects was 9.2%. The survival to discharge was 0. They recommended that DNR orders should be applied more frequently in the ICU.

Surgical services tend to discuss DNR less frequently than medical services. Morrell and colleagues¹⁰ in Indiana compared the use of DNR orders in medical subjects versus surgical subjects at time of hospital death. They noted DNR orders were more frequent on medical subjects (77.3%) than surgical subjects (64.2%). This study showed these orders were made earlier in the hospital stay for medical subjects (9.8 days before death) rather than for surgical subjects (5.1 days before death). They concluded that DNR orders are typically written late in the patients' hospital course on both medical and surgical services. They also noted several previous studies, in which DNR orders in patients who died were written within 3 days of the subjects' deaths. They concluded that physicians still are reluctant to have these emotional and time-intensive conversations with patients and their families, thus contributing to the palliative medicine initiative.

END-OF-LIFE CARE IN SICU AND TRAUMA

In 2008, the American Academy of Critical Care Medicine published a consensus statement on their recommendations for end-of-life (EOL) care in the ICU.¹¹ They recommended intensivists should be competent in all aspects of end-of-life care, including the "practical and ethical aspects of withdrawing different modalities of life-sustaining treatment and the use of sedatives, analgesics and nonpharmacologic approaches to easing the suffering of the dying process." Evidence supports "improved communication with the family has been shown to improve patient care and family outcomes."¹¹

Communication in the ICU around EOL issues remains problematic. Lautrette and colleagues¹² reviewed the literature regarding end-of-life family conferences. They noted multiple studies demonstrating proactive interventions are needed to improve communication at the end of life. They note families want better communication because improved communication improves the care of patients. They state these studies show families need more support than informal family conferences. Families require assistance in understanding the information provided, support during the decision-making process, and assistance with alleviating their guilt. Families also require assistance with achieving consensus among family members even when a health care proxy has been designated. These family meetings are time intensive, supporting the role of teams dedicated to patient and family support.

Part of the problem may lie in the ICU model of open versus closed intensive care units. Cassell and colleagues¹³ looked at the comparison of administrative models

of ICUs and the interactions of medical personnel and families. They noted that when surgeons have primary responsibility for patients, the most important goal is “defeating death.”¹³ When intensivists have sole patient responsibility (closed ICU model) then quality of life and scarcity of resources are considered. Their conclusions state the administrative models of ICU care need to be evaluated. Physician behavior will not change until the ICU model of care is addressed regardless of education of EOL principles.

One suggestion to improve communication in the ICU is a simple checklist on ICU admission. Mularski¹⁴ proposed a checklist that would identify surrogate decision makers and explore goals of care from a patient-family perspective. Application and quality could be measured by increased documentation of patient goals and preferences in the medical record. A checklist, however, does not ensure that difficult and emotional conversations occur and that information is appropriately relayed to patients and families. Often, a more structured team approach as provided by palliative care services is needed in this process.

INTEGRATION OF A PALLIATIVE CARE TEAM

The medical intensive care unit (MICU) has already begun to investigate integrating the palliative medicine team into the ICU in certain situations. Campbell and Guzman,¹⁵ at Wayne State University in Detroit, Michigan, compared ICU patients with end stage dementia who had a palliative medicine consult with those patients who did not have a palliative medicine consult. They noted a decreased hospital and MICU length of stay in subjects proactively identified with dementia and provided consultation from palliative medicine. They also noted that a “proactive palliative intervention decreased the time between identification of poor prognosis and the establishment of DNR goals, decreased time terminal demented subjects remained in the ICU, and reduced the use of nonbeneficial resources.”¹⁵ They stated that these interventions resulted in reduced burden and cost of care to the subjects and their families with increasing comfort and psycho-emotional support. There was no difference in the mortality or discharge to nursing home versus home in the 2 groups. In their study, palliative medicine consultation resulted in decreased length of stay and shorter time to defining goals of care without increasing mortality.

A similar study was done in the MICU in Rochester, New York. Norton and her team identified 191 subjects who, on admission to the MICU, had a high risk of dying.¹⁶ Two-thirds of these subjects had palliative care consultation. Their data showed that subjects in the palliative care consultation group had a significantly shorter length of stay in the MICU, without a difference in total length of stay in the hospital. There were no differences in mortality rates or discharge disposition between the groups. They concluded that there is a growing body of literature suggesting that “proactive interventions focused on enhancing communication regarding patients’ goals of care and benefits versus burdens of treatment are associated with shortened lengths of stay”¹⁶ in the ICU.

In New York, O’Mahony and colleagues¹⁷ published a descriptive study of the logistics of integration of the palliative care team into the ICUs at their hospitals. The advance practice nurse on the palliative care team went to the ICU daily to communicate with the ICU team. The palliative care team was consulted on one-third of the subjects that ultimately died within the ICU. They noted that subjects and families who had a consult had increased communication, education on the death process, improvements in pain and symptom management, increase in formalization of advance directives, and decrease in laboratory and radiology tests. Survival times

were identical between the subjects that had palliative care involvement versus those who did not.

The SICU in Milwaukee tried to establish the use of triggers for increasing access to palliative care. Bradley and colleagues¹⁸ identified subjects who would benefit from palliative care consultation as those who had a family request, futility considered or declared by medical team, family disagreement lasting more than 7 days, death expected during the same SICU stay, SICU stay greater than 1 month, diagnosis with median survival less than 6 months, greater than 3 SICU admissions during same hospitalization, Glasgow Coma Scale of less than 8 for more than 1 week in subjects aged younger than 75 years, and multiorgan failure in greater than 3 systems. Despite these triggers and identification of these subjects, the consult was at the discretion of the primary service or the SICU service in this ICU model. They noted that the use of triggers successfully identifies the subjects who were at a high risk of poor outcome (>50% mortality). However, the use of palliative care consults did not increase during the time period the triggers were implemented because the consult was optional and not mandatory. They suggested the daily use of a “palliative care bundle”¹⁸ by the SICU team that addresses symptom control, goal setting and prognostication, psychosocial and spiritual support, advance care planning, and patient and family support, may improve outcomes for the patients in the SICU. They also suggested this bundle may work best in a closed ICU model.

Even with trauma patients in the ICU, a structured approach to palliative intervention was found to be beneficial. In New Jersey, Mosenthal and associates¹⁹ instituted a palliative program implemented by the trauma surgeons and ICU nursing. This program included, on admission to the SICU, family bereavement support and assessment of prognosis and patient preferences. Secondly, they implemented interdisciplinary family meetings within 72 hours of admission. They noted the implementation of a palliative program did not change mortality, DNR, or withdraw of life-sustaining therapy rates, but both DNR and withdraw were implemented earlier in the hospital course. Of the patients who died, the ICU length of stay was decreased, and the time from DNR order to death was increased. They concluded that structured communication between physicians and families resulted in earlier consensus around goals of care for dying trauma patients. Integrating an early structured palliative program resulted in improved communication with families and improvement of EOL care.

The University of Rochester Medical Center launched an initiative to provide early consultation with palliative care for patients with severe traumatic brain injury.²⁰ They noted earlier and more thorough discussions with families about prognosis, patients’ values, and outcomes occurred after routine palliative care consultation. They noted a small but significant decrease in tracheostomies performed in this patient population and an increase in withdraw of mechanical ventilation before tracheostomy. They noted that the integration of a palliative care team resulted in increased conversations with families “about the delicate, complex and emotionally demanding decisions required to achieve fully informed choice in life-changing, unfamiliar and often terrifying situations.” They also noted medicine needs to move toward “more systematic conversations about the potential for invasive medical treatments both to do good and to harm patients toward the end of life.”²⁰

Recommendations for improving the quality of EOL care have been proposed by Nelson.²¹ She stated the goals of integrating palliative care in the ICU are to optimize comfort and function for patients at all stages of serious and life-threatening disease. Integrating palliative care on admission to the ICU provided emotional and practical support for families, beginning at diagnosis of critical illness, regardless of prognosis.

In this model, palliative care is part of comprehensive critical care, not as an optional alternative, and is simultaneous with critical care rather than sequential. Patients can continue treatments with the goal of restoring health, and there is not an expectation that critical illness will result in death. Rather than trying to change the attitudes in society and medicine toward death, the emphasis is on transforming the experience of dying in the ICU.

SUMMARY

As the population ages, the age of patients within the ICU also increases. In many of these clinical situations of trauma and postoperative surgical care, we do not adequately address the goals of care with patients and their families. An early integrated approach of palliative medicine in the SICU and trauma would offer patients and families improved communication of goals of care and support. Identification of evidence-based triggers for palliative medicine consults would facilitate this process (dialysis, tracheostomy in traumatic brain injury, dementia, ventilator >7 days, and so forth). Palliative medicine in the ICU offers the opportunity to decrease length of stay and decrease nonbeneficial resource use without increasing mortality. Taking care of our patients and their families and addressing all of their needs and goals, not just the physical, should be the role of every intensivist and surgeon.

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REFERENCES

1. Wunsch H, Guerra C, Barnato A, et al. Three-year outcomes for Medicare beneficiaries who survive intensive care. *JAMA* 2010;303:849–56.
2. Williams T, Dobb G, Finn J, et al. Determinants of long-term survival after intensive care. *Crit Care Med* 2008;36:1523–30.
3. Schneider C, Fertmann J, Geiger S, et al. Long-term survival after surgical critical illness: the impact of prolonged preceding organ support therapy. *Ann Surg* 2010;251:1145–53.
4. Tamara M, Covinsky K, Chertow G, et al. Functional status of elderly adults before and after initiation of dialysis. *N Engl J Med* 2009;361:1539–47.
5. Halvorsen k, Slettebo A, Nortbedt P, et al. Priority dilemmas in dialysis: the impact of old age. *J Med Ethics* 2008;34:585–9.
6. Kahn J, Benson N, Appleby D, et al. Long-term acute care hospital utilization after critical illness. *JAMA* 2010;303:2253–9.
7. Livingston D, Tripp T, Biggs C, et al. A fate worse than death? Long-term outcome of trauma patients admitted to the surgical intensive care unit. *J Trauma* 2009;67:341–9.
8. Sulmasy D, Sood J, Ury W. Physicians' confidence in discussion do not resuscitate orders with patients and surrogates. *J Med Ethics* 2008;34:96–101.
9. Myrianthefs P, Kalafati M, Lemonidou C, et al. Efficacy of CPR in a general adult ICU. *Resuscitation* 2003;57:43–8.
10. Morrell E, Brown B, Qi R, et al. The do-not-resuscitate order: associations with advance directives, physician specialty and documentation of discussion 15 years after the Patient Self-Determination Act. *J Med Ethics* 2008;34:642–7.

11. Truog R, Campbell M, Curtis J, et al. Recommendation for end-of-life care in the intensive care unit: a consensus statement by the American Academy of Critical Care Medicine. *Crit Care Med* 2008;36:953–63.
12. Lautrette A, Ciroldi M, Ksibi H, et al. End-of-life family conferences: rooted in the evidence. *Crit Care Med* 2006;34(Suppl):S364–72.
13. Cassell J, Buckman T, Streat S, et al. Surgeons, intensivists, and the covenant of care: administrative models and values affecting care at the end of life. *Crit Care Med* 2003;31:1263–70.
14. Mularski R. Defining and measuring quality palliative and end-of-life care in the intensive care unit. *Crit Care Med* 2006;34(Suppl):S309–16.
15. Campbell M, Guzman J. A proactive approach to improve end-of-life care in a medical intensive care unit for patients with terminal dementia. *Crit Care Med* 2004;32:1839–43.
16. Norton S, Hogan L, Holloway R, et al. Proactive palliative care in the medical intensive care unit: effects on length of stay for selected high-risk patients. *Crit Care Med* 2007;35:1530–5.
17. O'Mahony S, McHenry J, Blank A, et al. Preliminary report of the integration of a palliative care team into an intensive care unit. *Palliat Med* 2010;24:154–65.
18. Bradley C, Weaver J, Brasel K. Addressing access to palliative care services in the surgical intensive care unit. *Surgery* 2010;147:871–7.
19. Mosenthal A, Murphy P, Barker L, et al. Changing the culture around end-of-life care in the trauma intensive care unit. *J Trauma* 2008;64:1587–93.
20. Holloway R, Quill T. Treatment decisions after brain injury – tensions among quality, preference and cost. *N Engl J Med* 2010;362:1757–9.
21. Nelson J. Identifying and overcoming the barriers to high-quality palliative care in the intensive care unit. *Crit Care Med* 2006;34(Suppl):S324–31.