CHEST

Original Research

CRITICAL CARE

Differences in End-of-Life Care in the ICU Across Patients Cared for by Medicine, Surgery, Neurology, and Neurosurgery Physicians

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Background: **Some of the challenges in the delivery of high-quality end-of-life care in the ICU include the variability in the characteristics of patients with certain illnesses and the practice of critical care by different specialties.**

Methods: **We examined whether ICU attending specialty was associated with quality of end-of-life care by using data from a clustered randomized trial of 14 hospitals. Patients died in the ICU or within 30 h of transfer and were categorized by specialty of the attending physician at time of death (medicine, surgery, neurology, or neurosurgery). Outcomes included family ratings of satisfaction, family and nurse ratings of quality of dying, and documentation of palliative care in medical records. Associations were tested using multipredictor regression models adjusted for hospital site and for patient, family, or nurse characteristics.**

Results: **Of 3,124 patients, the majority were cared for by an attending physician specializing in medicine (78%), with fewer from surgery (12%), neurology (3%), and neurosurgery (6%). Family satisfaction did not vary by attending specialty. Patients with neurology or neurosurgery attending physicians had higher family and nurse ratings of quality of dying than patients of attending physicians specializing in medicine ($P < .05$). Patients with surgery attending physicians had lower nurse ratings of quality of dying than patients with medicine attending physicians ($P < .05$). Chart documentation of indicators of palliative care differed by attending specialty.**

Conclusions: **Patients cared for by neurology and neurosurgery attending physicians have higher family and nurse ratings of quality of dying than patients cared for by medicine attending physicians and have a different pattern of indicators of palliative care. Patients with surgery attending physicians had fewer documented indicators of palliative care. These findings may provide insights into potential ways to improve the quality of dying for all patients.**

Trial registry: **ClinicalTrials.gov; No.: NCT00685893; URL: www.clinicaltrials.gov**

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Abbreviations: DNR = do not resuscitate; EOL = end of life; QODD = Quality of Dying and Death

Death is common in the ICU in the United States,[1,2] and the importance of integrating quality palliative care into the ICU is being increasingly recognized. One of the challenges in the delivery of high-quality palliative care in the ICU is the dramatic variability in end-of-life (EOL) care across different ICUs.[3] Each ICU has its own culture that is shaped by many factors, including its structure, history, policies, processes of care, and attitudes.[4] Other important factors in the culture of the ICU are the types of patients and specialty of providers in an ICU. The characteristics of patients with certain types of illness or injury and the practice of different types of critical-care physicians can present challenges to the integration of palliative care into the ICU.[5]

A few reports have focused specifically on EOL care of the neurology or neurosurgery patient.[6,7] Devastating neurologic insults often occur suddenly in the absence of chronic debilitating conditions, and life-sustaining interventions are often initiated emergently before a diagnosis or prognosis can be defined.[8] Conversely, patients with many medical and some surgical diagnoses are more likely to have chronic comorbid illnesses related to their ICU admission. One prior study found that nurses rated quality of dying higher for neurology and neurosurgery patients than patients of other specialties.[9] However, to our knowledge, a comparison of the quality of EOL care across different physician specialties in the ICU has not otherwise been described.

To explore differences in EOL care across medicine, surgery, neurology, and neurosurgery physicians, we examined a cohort of patients who died in or shortly after a stay in the ICU. We asked whether the following outcomes differed by the physician specialty of the attending physician of record at the time of death: (1) family or nurse satisfaction with care, (2) family or nurse ratings of quality of dying, and (3) documentation of delivery of palliative care.

Materials and Methods

Design

Data were collected as part of a cluster-randomized trial designed to evaluate the efficacy of a multifaceted, interdisciplinary intervention to improve palliative care in the ICU (the Integrating Palliative and Critical Care study). Details of the study design and results of the randomized trial have been previously reported.[10-12] All study procedures were approved by the institutional review board at all sites.

Study Participants

All patients who died in the ICU after a minimum stay of 6 h or within 30 h of transfer from the ICU were eligible for the study. Patients with brain death were excluded. Hospitals in the Seattle-Tacoma, Washington, area were eligible if they had enough ICU deaths to meet sample size requirements for the Integrating Palliative and Critical Care study.[11] Of 16 eligible hospitals, 15 agreed to participate. The current study includes the 12 sites from the randomized trial as well as two of the pilot sites (one site was a pilot for the intervention but did not include chart abstraction). These 14 hospitals include two university-affiliated teaching hospitals; three community-based teaching hospitals; and nine community-based, nonteaching hospitals. Most of the hospitals (12 of 14) had one ICU (either medicine or mixed medicine-surgical). Of the two remaining hospitals, one had two ICUs (surgery and neurology) and the other had six ICUs (trauma, surgical, cardiac, medicine, burn, and neurosurgical). The majority of the hospitals (13 of 14) had a semi-open ICU structure with either optional or required intensivist consultation; the six ICUs at the remaining hospital included both closed and open ICU structures. Patients who died were identified using discharge and transfer logs. Study activities were from August 2003 to February 2008. Study procedures were approved by the institutional review board at each study site (e-Appendix 1).

Data Collection

Family Surveys: Surveys were mailed to families of patients who died during the study period. Surveys were mailed 1 to 2 months after the patient died and were written in English. One family member per patient was asked to respond. The survey packet included a cover letter, consent form, $10 incentive, postage-paid return envelope, and questionnaire booklet. The questionnaire booklet included demographic questions, the Quality of Dying and Death (QODD) questionnaire, and the Family Satisfaction in the ICU survey. Survey follow-up used a standardized approach[13] that included reminders sent 2 weeks after the initial mailing and second survey packets sent after 4 weeks if there was no response to the initial mailing.

Nurse Surveys: Nurse questionnaires were distributed within 72 h of death to the nurse caring for the patient at the time of death/transfer and the nurse from the prior shift. Survey packets included a cover letter, consent form, coffee-card incentive, the QODD questionnaire, and questions asking for ratings of the care the patient received in the last days of life. The same procedures were used to follow-up with nonrespondents as with family members.[13]

Chart Abstraction: Data abstractors were trained by two research-abstraction trainers. Training included a minimum of 80 h of practice abstraction followed by reconciliation with trainers. Training continued until 95% agreement was reached with trainers. For ongoing quality control, abstracters coreviewed a 5% random sample, ensuring at least 95% agreement on the 440 abstracted data elements.

Death Certificate Data: Washington State death certificates were linked by patient identifier to provide data that were unavailable or incomplete in the medical record. Data obtained from death certificates include patient race, education, marital status, and cause of death.

Variables of Interest

Outcome Measures

Quality of Dying and Death Questionnaire—Family members and nurses completed the validated QODD questionnaire measuring family- or clinician-assessed quality of dying.[9,14-16] For this study, we examined a single-item, quality-of-dying rating (range, 0-10) that is associated with ICU palliative care.[17] Higher scores indicate higher-quality dying.

Family Satisfaction in the ICU Survey—This survey is a validated 34-item questionnaire measuring family satisfaction with ICU care.[18,19] Scores on 24 items provide a total satisfaction score, as well as two domain scores: satisfaction with care and satisfaction with decision-making.[20] Scores are recoded and recalibrated to a 0 to 100 range, with higher values indicating higher satisfaction.[20]

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