

Editorial

Improving End of Life Care in Orthopaedics

Mark D. Neuman MD, MS

Published online: 7 January 2011
© The Association of Bone and Joint Surgeons® 2011

The care of patients at the end of life represents a key dimension of practice for all fields of medicine, including orthopaedic surgery. While infrequently discussed in the clinical orthopaedic literature, understanding how providers of orthopaedic care can help to improve the experiences older adults in the late stages of progressive illness or disability is likely to grow in importance over time.

Each year in the United States, older adults sustain 2 million osteoporosis-related fractures [6], a figure that is anticipated to increase rapidly during the coming decades owing to the aging of the population [4, 19]. Although the majority of these fractures occur in adults who are still far from the end of life, they nonetheless are associated with profound, sustained increases in the likelihood of death [3]: for patients with hip fractures, one of every five can be expected to die during the year following injury [5]. Also, key subgroups of patients with fractures, particularly those with progressive disability or comorbidity, may be at still greater risk [10], as patients with advanced dementia experience a 55% mortality at 1 year after fracture [15]. Among this highest-risk group, orthopaedic conditions account for a large proportion of acute medical care needs; observing a cohort of 323 patients with advanced dementia over 18 months, Mitchell et al. found fractures of the hip and other sites to represent 16.6% of all acute medical events [12].

For patients experiencing musculoskeletal conditions near the end of life, such injuries may occur as one aspect of a larger, ongoing process of decline toward death. Providers of orthopaedic care therefore may serve as important points of contact with the healthcare system for patients near the end of life, and may engage with patients in decisions regarding healthcare services, such as surgery, with implications for the duration and quality of life. For these reasons, acute orthopaedic care offers distinct opportunities to improve the overall experiences of dying patients and their families in ways that may extend beyond the care they deliver for a specific, presenting injury. Here, I briefly outline three considerations relevant to orthopaedic practice that the literature in palliative medicine has highlighted as being of importance to patients near the end of life and their families: the definition of individual healthcare goals, the treatment of pain, and the individualization of healthcare decisions.

Definition of Individual Healthcare Goals

Published in 1995, the Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment (SUPPORT), a multicenter, randomized controlled trial of an end-of-life planning intervention, highlighted pronounced shortcomings related to determinations of patient goals of care at the end of life [17]. SUPPORT investigators observed that fewer than half of physicians treating dying patients were able to correctly state their patients' preferences regarding resuscitation. Of the patients in the SUPPORT study who had do-not-resuscitate orders, these orders were written, on average, two days before death [17]. Since publication of the SUPPORT study results, initiatives to improve the quality of hospital care for older

M. D. Neuman (✉)
Department of Anesthesiology and Critical Care, University of Pennsylvania School of Medicine, 1117A Blockley Hall, 423 Guardian Drive, Philadelphia, PA 19104, USA
e-mail: neumanm@mail.med.upenn.edu

M. D. Neuman
The Leonard Davis Institute of Health Economics,
Philadelphia, PA, USA

adults have promoted routine determinations of healthcare goals as a part of the process of acute care [1]. At the same time, meaningful discussions regarding end-of-life care often may be delayed until late in the course of illness owing, in part, to challenges physicians face in knowing the appropriate moment to initiate such discussions. Considering these challenges, Timothy Quill suggests that end-of-life discussions are appropriate not only for patients facing imminent death, but for any patient for whom the clinician would not “be surprised if the patient died within the next 6–12 months” [16].

As fragility fractures occurring among patients with multiple disabilities or advanced dementia carry profound prognostic implications, they may offer important opportunities to initiate discussions with patients regarding their goals of care at the end of life. Such discussions should focus on overall healthcare priorities, such as the relative importance of life-sustaining treatments and treatments intended to enhance the quality of life, as well as preferences for specific treatments, including surgery, cardiopulmonary resuscitation, and palliative care [16].

Treatment of Pain

Although the treatment of pain is a fundamental aspect of humane care for all patients, pronounced shortcomings in pain management near the end of life have been documented by SUPPORT [17] and in a more recent investigation [9]. In the context of orthopaedic care, acute pain frequently may be undertreated, as 44% of cognitively intact patients with hip fractures experience severe or very severe pain during hospitalization [14]. Despite evidence that inadequate analgesia may increase the incidence of inpatient mental status changes [13], patients with preexisting neurologic conditions such as dementia receive less pain treatment after hip fracture than do similar patients without dementia [14]. As a consequence, patients with the poorest prognosis for survival in the year after fracture also may be at greatest risk for inadequate treatment of pain in the acute setting. Improving the recognition and treatment of acute pain, potentially through use of regional anesthesia [8] or structured care pathways including pain-management protocols [18], represents a key opportunity to improve end-of-life care in orthopaedics.

Individualization of Healthcare Decisions

Determining the appropriate use of health services for patients near the end of life is a complex task that demands alignment of available healthcare resources with individual preferences and goals for care. Although many patients near

the end of life may express preferences to forego invasive treatments, others may want to pursue care interventions that may increase the duration or quality of their remaining life [7]. Nonetheless, the presence of a do-not-resuscitate order may carry practical implications for the care patients receive that extend beyond the provision of CPR alone, as physicians may be less likely to recommend other life-prolonging treatments, such as blood cultures, central line placement, or blood transfusion, to patients with do-not-resuscitate orders [2, 11]. As such, the experiences of patients near the end of life potentially may be improved through an acknowledgement that the simultaneous delivery of life-prolonging treatments and palliative care for a given patient may be appropriate if aligned with an individual’s overarching priorities for care [7].

In practice, incorporating these concepts into the care of older adults with musculoskeletal conditions may represent a challenging task potentially influenced by a range of patient and health system factors. The ability of patients to communicate their wishes for end-of-life care, the availability of surrogate decision-makers, and the presence or absence of established relationships with healthcare providers may all make the task of defining and meeting patients’ goals of care more or less complex. Similarly, the availability of key healthcare services, including geriatric or palliative medicine consultation and access to hospice care, are likely to influence the success with which episodes of orthopaedic care serve the priorities of patients near the end of life. Nonetheless, as the aging of the US population leads older adults to account for a progressively larger fraction of all orthopaedic patients, improving the degree to which orthopaedic management lives up to the standards of high-quality end-of-life care is likely to be of greater importance to patients, families, and advocates for quality in healthcare. In large part, the success or failure of orthopaedic providers in this domain will depend on the extent to which their management of acute and chronic conditions supports the values and priorities of individual patients. Such a challenge demands an increasingly nuanced understanding of what constitute the core values of orthopaedic care that can recognize the diversity of healthcare goals that may evolve over the life course.

Conflict of Interest The author has no financial or other conflicts of interest to disclose.

References

1. Arora VM, McGory ML, Fung CH. Quality indicators for hospitalization and surgery in vulnerable elders. *J Am Geriatr Soc.* 2007;55(suppl 2):S347–S358.
2. Beach MC, Morrison RS. The effect of do-not-resuscitate orders on physician decision-making. *J Am Geriatr Soc.* 2002;50:2057–2061.

3. Bliuc D, Nguyen ND, Milch VE, Nguyen TV, Eisman JA, Center JR. Mortality risk associated with low-trauma osteoporotic fracture and subsequent fracture in men and women. *JAMA*. 2009;301:513–521.
4. Braithwaite RS, Col NF, Wong JB. Estimating hip fracture morbidity, mortality and costs. *J Am Geriatr Soc*. 2003;51:364–370.
5. Brauer CA, Coca-Perraillon M, Cutler DM, Rosen AB. Incidence and mortality of hip fractures in the United States. *JAMA*. 2009;302:1573–1579.
6. Burge R, Dawson-Hughes B, Solomon DH, Wong JB, King A, Tosteson A. Incidence and economic burden of osteoporosis-related fractures in the United States, 2005–2025. *J Bone Miner Res*. 2007;22:465–475.
7. Covinsky KE, Yaffe K. Dementia, prognosis, and the needs of patients and caregivers. *Ann Intern Med*. 2004;140:573–574.
8. Foss NB, Kristensen MT, Kristensen BB, Jensen PS, Kehlet H. Effect of postoperative epidural analgesia on rehabilitation and pain after hip fracture surgery: a randomized, double-blind, placebo-controlled trial. *Anesthesiology*. 2005;102:1197–1204.
9. Lu H, Trancik E, Bailey FA, Ritchie C, Rosenfeld K, Shreve S, Furman C, Smith D, Wolff C, Casarett D. Families' perceptions of end-of-life care in Veterans Affairs versus non-Veterans Affairs facilities. *J Palliat Med*. 2010;13:991–996.
10. Magaziner J, Lydick E, Hawkes W, Fox KM, Zimmerman SI, Epstein RS, Hebel JR. Excess mortality attributable to hip fracture in white women aged 70 years and older. *Am J Public Health*. 1997;87:1630–1636.
11. Mannino R, Zuelzer W, McDaniel C, Lyckholm L. Advance directives and resuscitation issues in the care of patients in orthopaedic surgery. *J Bone Joint Surg Am*. 2008;90:2037–2042.
12. Mitchell SL, Teno JM, Kiely DK, Shaffer ML, Jones RN, Prigerson HG, Volicer L, Givens JL, Hamel MB. The clinical course of advanced dementia. *N Engl J Med*. 2009;361:1529–1538.
13. Morrison RS, Magaziner J, Gilbert M, Koval KJ, McLaughlin MA, Orosz G, Strauss E, Siu AL. Relationship between pain and opioid analgesics on the development of delirium following hip fracture. *J Gerontol A Biol Sci Med Sci*. 2003;58:76–81.
14. Morrison RS, Siu AL. A comparison of pain and its treatment in advanced dementia and cognitively intact patients with hip fracture. *J Pain Symptom Manage*. 2000;19:240–248.
15. Morrison RS, Siu AL. Survival in end-stage dementia following acute illness. *JAMA*. 2000;284:47–52.
16. Quill TE. Perspectives on care at the close of life. Initiating end-of-life discussions with seriously ill patients: addressing the “elephant in the room”. *JAMA*. 2000;284:2502–2507.
17. The SUPPORT Principal Investigators. A controlled trial to improve care for seriously ill hospitalized patients: the study to understand prognoses and preferences for outcomes and risks of treatments (SUPPORT). *JAMA*. 1995;274:1591–1598.
18. Titler MG, Herr K, Brooks JM, Xie XJ, Ardery G, Schilling ML, Marsh JL, Everett LQ, Clarke WR. Translating research into practice intervention improves management of acute pain in older hip fracture patients. *Health Serv Res*. 2009;44:264–287.
19. Vincent GK, Velkoff VA. *The Next Four Decades: The Older Population in the United States: 2010 to 2050*. Washington, DC: US Census Bureau; 2010.