Update in Hospice and Palliative Care

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Introduction

THE GOAL OF THIS UPDATE in hospice and palliative care is to identify, summarize, and critique journal articles published (electronically or in print) between January 1, 2010 and December 31, 2010, with the highest potential for impact on the clinical practice of hospice and palliative medicine. We began with a hand search of 21 leading journals as well as a keyword search in PubMed using the terms “hospice” and “palliative care.” We also hand-searched the Cochrane Database of Systematic Reviews¹ and Fast Article Critical Summaries for Clinicians in Palliative Care.² Articles were reviewed and ranked based on study quality, scientific merit, and potential for immediate impact on the field of hospice and palliative care. The purpose of this manuscript is to inform clinicians across a broad range of topics, including outcomes of palliative care; symptom management; palliative care for special populations (pediatrics, geriatrics, and critical care); and advance care planning. Changes to practice resulting from the articles reviewed are summarized in Table 1.

Outcomes of Early Palliative Care

Temel JS, Greer JA, Muzikansky A, Gallagher ER, Admane S, Jackson VA, Dahlin CM, Blinderman CD, Jacobsen J, Pirl WF, Billings JA, Lynch TJ: Early palliative care for patients with metastatic non-small-cell lung cancer. *N Engl J Med* 2010;363:733–742.

Summary and main findings

While palliative care has continued to grow as a specialty, there continues to be a lack of randomized, controlled trial evidence demonstrating its effectiveness when delivered simultaneously with disease modifying treatments in patients with advanced illness. The authors designed a nonblinded randomized controlled trial of early outpatient palliative care integrated with standard oncologic care compared with standard oncologic care alone. Patients with pathologically confirmed metastatic non-small-cell lung cancer (NSCLC,) diagnosed within eight weeks before enrollment, and good functional status, were enrolled at a single academic medical center. Patients already receiving palliative care were not eligible. Both control and intervention arms received standard

oncologic and radiation treatments to treat their lung cancer. Patients randomized to receive early palliative care met with a member of the palliative care team in the outpatient setting within three weeks after enrollment and then at least monthly until death or study termination. During these visits, particular attention was paid to alleviating physical and psychological symptoms, establishing the patient’s goals of care, assisting with decision making regarding treatments, and helping to coordinate care. Patients in the control arm could receive palliative care after randomization if requested by the patient, family, or oncologist, though all patients randomized to the control arm were analyzed in that arm. Outcomes included quality of life, depression, utilization of health care resources, and survival.

Overall, 151 patients were randomized (72% of those approached for the study), 74 to standard care and 77 to the early palliative care intervention. Age was similar among the two groups (mean 65 years) as was gender (half female); the majority of patients in both groups were white. Patients in the early palliative care arm had better quality of life and lower rates of depression, compared to the standard care group. By the end of the study, 70% of the patients had died. Standard care patients were more likely to receive aggressive care at the end of life (54% versus 33%, $p=.05$), and less likely to have resuscitation preferences documented (28% versus 53%, $p=.05$). Patients who received palliative care had longer median survival (11.6 versus 8.9 months, $p=.02$).

Strengths and limitations

This was a high-quality trial of a palliative care intervention in patients with serious, life-threatening illness, using an intention-to-treat analysis. The study provides compelling evidence of the benefits of palliative care in patients with advanced NSCLC, and helps dispel notions that palliative care may shorten survival. Generalizability is limited by patient demographics and the single academic medical center, Boston area study location, with a very mature palliative care program. Future larger studies should focus on other cancer types, patient demographics, and geographic areas, and should describe palliative care as a reproducible intervention.

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TABLE 1. RECOMMENDATIONS FOR CLINICAL HOSPICE AND PALLIATIVE CARE PRACTICE EMERGING FROM ARTICLES PUBLISHED IN 2010

<i>Recommendation</i>	<i>Reference</i>
Start providing palliative care to:	
All patients with advanced non-small-cell lung cancer, to improve quality of life, mood, and survival.	Temel et al ⁴
Patients receiving prolonged mechanical ventilation, to encourage realistic expectations of mortality and functional recovery.	Unroe et al ⁵
Children undergoing stem cell transplantation, to improve communication about prognosis and goals of care and symptom management.	Ullrich et al ⁶
Consider:	
Using less burdensome alternatives to oxygen for dyspnea in nonhypoxemic patients.	Abernethy et al ⁷
Counseling families of dementia patients that antibiotics may prolong life but increase discomfort.	Givens et al ⁸
Incorporating visual media into end-of-life treatment option discussions.	El-Jawahri et al ⁹
Continue:	
To consider other sources surrogates may be using to estimate prognosis.	Boyd et al ¹⁰
To facilitate surrogate-patient discussions to increase surrogate understanding of patient preferences at the end of life.	Kirchhoff et al ¹¹

Clinical bottom line

Early palliative care integrated with standard oncologic care for patients with metastatic NSCLC is associated with improved quality of life, mood, decreased use of aggressive therapies at the end-of-life, and longer survival.

Symptom Management

Abernethy AP, McDonald CF, Frith PA, Clark K, Herndon JE 2nd, Marcello J, Young IH, Bull J, Wilcock A, Booth S, Wheeler JL, Tulskey JA, Crockett AJ, Currow DC: *Effect of palliative oxygen versus room air in relief of breathlessness in patients with refractory dyspnoea: A double-blind, randomised controlled trial. Lancet* 2010;376:784–793.

Summary and main findings

Breathlessness is a troubling and prevalent symptom in patients with advanced disease. The authors conducted a double-blind, multicenter, randomized, controlled trial of oxygen as compared to compressed room air to relieve dyspnea in patients with advanced illness. Patients were drawn from outpatient pulmonary, palliative care, and primary care clinics in Australia, the United States, and the United Kingdom. Inclusion criteria were: age > 18, having refractory dyspnea, undergoing maximal treatment for the underlying medical illness, having a PaO₂ > 7.3 kPa (~55 mm HG), being

dyspneic at rest, and having an expected survival of at least 1 month. Patients meeting criteria for medical oxygen therapy were excluded. To assure that all parties involved in the study remained blinded to the allocation arm, intervention assignment was communicated from the central randomization service to the medical gas company who prepared and delivered identical-appearing concentrators to patients' homes. The intervention lasted seven days, and participants kept a diary of symptoms throughout the course of the study. The main outcome was "breathlessness right now" measured twice daily; secondary outcomes included other measures of breathlessness, physical function, sleep, and quality of life.

The study enrolled 239 patients; 120 in the oxygen arm and 119 in the room air arm. Demographics were similar in both groups (age 73–74 years; 60–63% male), as were the percent of patients with COPD and the mean PaO₂. The primary outcome of "breathlessness right now" did not differ between the two groups, nor did any of the secondary outcomes. Patients with more severe baseline dyspnea were more likely to report decreased breathlessness in both the oxygen and control arms. Adverse events were infrequent in both groups.

Strengths and limitations

This was a well-designed randomized, controlled study of patients with multiple life-limiting diagnoses, conducted in three countries, with a novel method of blinding study personnel and subjects. Limitations include that the study was not designed to test differences between types of life-limiting diagnoses, and that all patients were outpatients with life expectancy of at least one month.

Clinical bottom line

As compared to compressed room air, oxygen therapy delivered by nasal cannula provides no additional symptomatic benefit for relief of refractory dyspnea in patients with life-limiting illness.

Pediatrics

Ullrich CK, Dussel V, Hilden JM, Sheaffer JW, Lehmann L, Wolfe J: *End-of-life experience of children undergoing stem cell transplantation for malignancy: Parent and provider perspectives and patterns of care. Blood* 2010;115:3879–3885.

Summary and main findings

While recent advances have greatly improved outcomes for pediatric patients undergoing stem cell transplant, little is known about the end-of-life care delivered to these children and their families. To further elucidate this, the researchers conducted a retrospective survey of parents and physicians of children who died from cancer, comparing children who received stem cell transplant (SCT) to those who did not. Parents of children cared for at one of two academic medical centers (one in the Midwest and one in the Northeast) were contacted at least one year after the child's death if: they spoke English, lived in North America, and the child's oncologist gave permission to contact the child's family. Parents completed a structured telephone survey about the time preceding their child's death, including their goals for the child's care during that time, and when they perceived that there was no realistic chance of cure. Physicians were surveyed to

determine their assessment of the goals of therapy near the end of the child's life. Medical record abstraction was performed to determine date of last cancer-directed therapy, care received at the end of the child's life, and when it was noted that there was no realistic chance of cure for the child's illness.

Of 244 eligible parents, 222 were located and 141 completed the interviews (64% response rate). The investigators divided the subjects into those who had received SCT ($n=31$) and those who did not ($n=110$). There were no significant differences between the two groups in terms of the ages of the children (9–10 years old), gender (46–48% female), time since death, mean duration of illness, or parents' age at the time of death. Parents and physicians of children who did not receive stem cell transplant were more likely to recognize that the child had no chance of cure seven days before the child died as compared to the parents and physicians of children who had SCT. Higher percentages of parents and physicians of children who received SCT were likely to believe that the goal of the last treatment was to cure or prolong life as compared to cases without the transplant. Children who received SCT were more likely to spend time in the hospital, more likely to die in an intensive care unit (ICU), and less likely to have a do not resuscitate (DNR) order. Parents of children who underwent SCT were more likely to report that their child suffered at the end of life.

Strengths and limitations

This is one of the first studies to examine the experience of children dying of cancer who underwent SCT. Strengths include that it was conducted at two large academic medical centers, each with a well-established SCT program, and that multiple sources of information were used. Limitations include the retrospective design, and possible bias given the mean three years of time elapsed between the child's death and the survey.

Clinical bottom line

Physicians and parents of children who died after SCT were less likely to recognize that the child's treatment would not result in cure, compared to cases without SCT. This was associated with more use of life-sustaining treatments, less planning, and increased symptom burden for the children.

Geriatrics and long-term care

Givens JL, Jones RN, Shaffer ML, Kiely DK, Mitchell SL: Survival and comfort after treatment of pneumonia in advanced dementia. Arch Int Med 2010;170:1102–1107.

Summary and main findings

Pneumonia is common among patients with advanced dementia, and palliative care clinicians often make recommendations as to the use of antibiotics in this patient population. However, whether antimicrobial treatment improves survival or comfort is not well understood. The authors conducted a prospective cohort study of nursing home residents with advanced dementia and their health care proxies. Residents were living in 22 nursing homes with at least 60 beds, located within 60 miles of Boston. The patients were at least 60 years old, had advanced dementia (as defined by validated instruments) and had a proxy to provide consent. Data col-

lection included chart review, interviews with nurses who were caring for the subjects, and physical exams of the residents. Data were collected at baseline and then quarterly, and data about deceased subjects were recorded within two weeks of the patient's death. Charts were examined for documentation of pneumonia, unstable vital signs, use of x-ray, and whether aspiration was noted to be a cause. Treatments provided for the pneumonia were divided into four categories: none, oral antimicrobials, intramuscular antimicrobials, and intravenous antimicrobials/patient hospitalization. Survival was defined as the days from an episode until death or the end of the follow-up period. Nursing data regarding patient symptoms was recorded every 90 days using a standardized instrument measuring pain, dyspnea, depression, fear, anxiety, agitation, and resistance to care.

Of 572 eligible nursing home residents, 323 (57%) were enrolled. Of these, 41% had at least 1 episode of pneumonia. Some patients had more than one episode, for a total of 225 cases of pneumonia throughout the course of the study. Of those who had pneumonia, the mean age was 86 years, 81% were female, and 92% were white. Of the 225 episodes of pneumonia, 9% were not treated, 55% received oral antibiotics, 16% received intramuscular antibiotics, and 20% received intravenous antibiotics and/or were hospitalized. Of the 77% who received chest x-ray, 84% of cases were confirmed. Antimicrobial treatment by any route was associated with lower mortality after suspected pneumonia episode, compared with no treatment. There was no statistical difference in survival based on route of delivery of antimicrobial agent. Among patients who lived at least 90 days from the episode ($n=159$), comfort was greater among those who were not treated with antibiotics, compared to those who received more invasive treatments (oral, intramuscular, and intravenous/hospitalization).

Strengths and limitations

This was a well-designed, prospective, multisite study. Limitations include its observational design, that pneumonia diagnoses were identified by chart review, and that symptoms were not necessarily assessed at the time of the pneumonia episode.

Clinical bottom line

For nursing home residents with advanced dementia who develop pneumonia, antimicrobial treatment prolongs life but is associated with more discomfort. For those who die, withholding of antimicrobial agents does not appear to be associated with increased suffering.

Critical Care

Unroe M, Kahn JM, Carson SS, Govert JA, Martinu T, Sathy SJ, Clay AS, Chia J, Gray A, Tulskey JA, Cox CE: One-year trajectories of care and resource utilization for recipients of prolonged mechanical ventilation: A cohort study. Ann Intern Med 2010;153:167–175.

Summary and main findings

An increasing number of patients receive prolonged mechanical ventilation, yet their long-term outcomes have not been well described. The authors enrolled a prospective

cohort of patients and their surrogates from intensive care units (ICUs) at an academic medical center. Eligible patients received at least three weeks of mechanical ventilation with less than two days of unassisted breathing, or at least four days followed by a tracheotomy in anticipation of prolonged ventilatory support. Outcomes, assessed by interview with patients or surrogates and review of medical records, included mortality, quality of life, and functional status at one year.

Prior to hospital admission, 98% of the 126 patients studied were living at home and had good functional status (median activities of daily living dependencies = 0). Over the course of the enrollment hospitalization, 18% died in the hospital. Those who were discharged alive had significant functional dependency and care requirements, 63% being discharged to a facility. By the end of the year 44% of the patients had died and 56% remained alive. Of those living at one year, most patients (83%) had transitioned to home, yet only 9% were functionally independent. Many (39%) had complete functional dependency, and almost half (49%) had a poor quality of life, as rated by the patient or a surrogate.

Strengths and limitations

Study strengths include high enrollment (80%) and follow-up (93%) rates, and the measurement of patient and family-relevant outcomes a year after initiation of prolonged mechanical ventilation. Generalizability of the results is limited by the study being conducted at a single academic center in an area with high long-term acute care facility penetration. Future research should investigate whether providing this information to patients and surrogates changes decision-making or patient outcomes. The results do suggest that the chronically critically ill and their families could benefit from palliative care, for communication, decision-making, and psychosocial support.

Clinical bottom line

Patients who receive prolonged mechanical ventilation have high mortality and functional dependence and poor quality of life a year after hospital discharge.

Boyd EA, Lo B, Evans LR, Malvar G, Apatira L, Luce JM, White DB: "It's not just what the doctor tells me": Factors that influence surrogate decision-makers' perceptions of prognosis. *Crit Care Med* 2010;38:1270-1275

Summary and main findings

Provider-surrogate concordance about prognosis is often poor, and providers may not understand why families make decisions that are incongruous with their clinical prognostic estimates. However, the sources families use to assess prognosis are poorly understood. The authors performed a mixed quantitative-qualitative methods analysis of semistructured interviews with adult, English-speaking surrogates of intensive care unit (ICU) patients at an academic medical center. Eligible patients were mechanically ventilated, lacked decision-making capacity, and had an in-hospital mortality risk of at least 40% as measured by their Acute Physiology and Chronic Health Evaluation II score. Surrogates were interviewed during the patient's ICU stay. First, they were asked to

provide a numeric estimate of the patient's hospital survival (between 0% and 100%). Then, they were asked to describe the reasons for their estimate. Interviews were audio-recorded, transcribed, and analyzed using qualitative methods to identify key themes.

Of 179 enrolled surrogates, most were the child or spouse of the patient. They estimated the patient's survival, on average, to be 69%. Regarding the sources of their prognostic estimate, most surrogates (79%) reported receiving prognostic information from a physician, however only 47% used this estimate when formulating their estimate, and only 2% based their estimate solely on the information provided by the physician. Other factors surrogates used in estimating patient's prognosis included their interpretation of the patient's physical appearance or status; optimism, intuition, and faith; the patient's history of illness and survival; the patient's intrinsic qualities and will to live; and the power of support from others.

Strengths and limitations

Study strengths include a high enrollment rate (78% of eligible), the use of a multidisciplinary team to develop the qualitative coding scheme, a high inter-rater reliability in coding, and checking the results with the study participants. The goal of the study was to describe the breadth of sources of surrogates' prognostic estimates; the design does not address the relative importance of each. Factors that limit generalizability include the study of only English-speaking surrogates in ICUs at a single academic center. Regarding application of their findings, the authors propose that communication about prognosis should be a process of sharing understanding instead of a unidirectional transmission of knowledge from provider to family.

Clinical bottom line

Surrogates integrate information from a number of sources when estimating a patient's prognosis, including providers, their knowledge and observations of the patient, intuition, faith, and support of loved ones.

Advance Care Planning

Kirchhoff KT, Hammes BJ, Kehl KA, Briggs LA, Brown RL: Effect of a disease-specific planning intervention on surrogate understanding of patient goals for future medical treatment. *J Am Geriatr Soc* 2010;58:1233-1240.

Summary and main findings

At the end of life, surrogates make health care decisions for most patients, yet surrogate-patient concordance about treatment preferences is often poor. This randomized controlled trial examined the ability of a structured patient-centered interview to improve surrogates' knowledge of seriously ill patients' end-of-life treatment preferences. Surrogates and patients with heart failure and end-stage renal disease were enrolled from outpatient community and academic clinics and dialysis centers in two cities in Wisconsin, and randomized to receive either usual care or the interview intervention. Usual care patient-surrogate pairs received routine advance care planning per routine practice at the site, including assessing whether the patient had an advance

directive and, if they had not, offering to assist in completion. One study site offered a structured interview that did not routinely include the surrogate. The interview intervention was 60–90 minutes, included the patient and surrogate, and was conducted by a trained facilitator. It began with determining patients' understanding of their condition and its likely course, hopes and fears, what gave their life meaning, and how past medical and end-of-life experiences influenced their treatment preferences. The interviewer explained the importance of surrogate understanding of patient preferences, then presented disease-specific scenarios and elicited the patient's preferences for each. The interview concluded by highlighting the importance of the discussion for future decisions that the surrogate might need to make. The study outcome was patient-surrogate concordance about treatment preferences in four scenarios: a low probability of survival, severe functional impairment, severe cognitive impairment, and cardiopulmonary arrest. For each, options were to provide or not provide life-prolonging treatment.

Of the 313 patient-surrogate pairs who completed the study, about half in each arm had heart failure and half renal failure. The mean patient age was 71, most were white, and one third had greater than a high school education. Half of the surrogates were the patient's partner. The kappa score for surrogate-patient concordance in the four scenarios ranged from 0.26–0.28 in the usual care group and 0.61–0.74 in the intervention, indicating closer surrogate understanding of patient preferences in the intervention group for all four scenarios.

Strengths and limitations

Study strengths include use of a high-quality randomized controlled design, and the application of the intervention to patients with advanced illness and their surrogates. A limitation is the low enrollment rate (48%); reasons for patient/surrogate refusal are not stated. Future research should test whether the intervention changes the end-of-life decisions that surrogates make for patients. Generalizability of the results may be limited by the fact that all of the participants were from Wisconsin, and 74% lived in a city with high levels of community advance care planning education. The intervention should be tested in other life-limiting illnesses.

Clinical bottom line

Structured, facilitated patient-surrogate conversations are associated with improved surrogate understanding of patient wishes.

El-Jawahri A, Podgurski LM, Eichler AF, Plotkin SR, Temel JS, Mitchell SL, Chang Y, Barry MJ, Volandes AE: Use of video to facilitate end-of-life discussions with patients with cancer: A randomized controlled trial. J Clin Oncol 2010;28:305–310

Summary and main findings

In advanced cancer patients, receipt of life-sustaining therapies at the end of life (EOL) is associated with poor patient and family outcomes, yet providers struggle with how to effectively explain treatments such as mechanical ventilation and cardiopulmonary resuscitation (CPR). This randomized controlled trial tested the effect of a video presenting EOL care options on EOL treatment preferences in patients with ma-

lignant glioma at an academic medical center. Eligible patients could communicate in English and provide informed consent. They were approached in the outpatient setting by their primary oncologist. Enrolled patients were randomized to receive either a verbal narrative alone, or the verbal narrative supplemented by a video depicting the same information. Three care options were presented: 1) Life-prolonging care, which aims to prolong life at any cost and includes all potentially indicated treatments, such as CPR, mechanical ventilation, and ICU care; 2) Basic medical care, which aims to maintain physical and mental function, includes hospitalization, intravenous fluids, and antibiotics, but excludes CPR, mechanical ventilation, and ICU care; and 3) Comfort care, which aims to maximize comfort and alleviate suffering, includes treatments to relieve symptoms, hospitalization only for symptom control, and excludes CPR, mechanical ventilation, and ICU care. The supplemental video was six minutes in length and consisted of a narrator presenting the information from the verbal narrative, along with visual images of each care option. Study outcomes were the patient's preferred care option if their cancer became very advanced, their CPR preference, their knowledge of CPR and the care options, and, for patients randomized to view the video, its perceived usefulness and acceptability.

Of the 50 enrolled patients, most were white, educated, had completed an advance directive, and rated their current health as excellent or good. Compared to patients who received the verbal narrative alone, patients who viewed the video were significantly more likely to prefer comfort care if their cancer became very advanced, 22% versus 91%, $p < 0.001$, and to prefer not to receive CPR, 59% versus 91%, $p = 0.02$. Patients who viewed the video had higher knowledge of CPR and the care options, were comfortable watching the video, and would recommend it to others.

Strengths and limitations

Study strengths include high enrollment rate (78%), and the realistic portrayal of EOL care options without obvious bias toward one or the other. The study included patients who were willing to discuss these topics, as evidenced by their high rate of advance directive completion. As the authors note, the repetition of the information in patients who viewed the video may have contributed to the higher knowledge of CPR and the care options, but is unlikely to explain the difference in preferences between the two groups. Generalizability is limited by the small sample size of white, well-educated glioma patients from a single academic medical center, though the authors report similar results in a community dwelling sample of elder adults.³ It is important to note that these videos are not meant to replace but to supplement provider-patient discussions.

Clinical bottom line

Viewing a video depicting EOL care options increased patients' preference for comfort care, and decreased their desire to receive CPR and other life-prolonging therapies.

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