

## End-of-Life Discussions Associated with Less Aggressive Care in Patients Dying of Cancer

Wright A, Zhang B, Ray A, et al. Associations between end-of-life discussions, patient mental health, medical care near death, and caregiver bereavement adjustment. *JAMA* 2008;300:1665–73.

### Study Overview

**Objective.** To determine whether end-of-life discussions between physicians and patients dying of cancer are associated with aggressive care near death and to assess how aggressive care affects patient and caregiver quality of life.

**Design.** Longitudinal cohort study.

**Setting and participants.** 332 patients aged  $\geq 20$  years with advanced cancer (metastatic cancer that failed first-line chemotherapy) and their caregivers, surveyed in 7 outpatient settings from 2002 to 2008. Patients and their caregivers were interviewed separately at baseline, and caregivers were interviewed again at a median of 6.5 months after the patient's death.

**Main outcome measures.** Aggressive care at the end of life (ie, resuscitation, intensive care unit [ICU] hospitalization, ventilator support, chemotherapy, feeding tubes) as well as patients' quality of life near death and caregivers' bereavement adjustment (ie, likelihood for meeting criteria for psychiatric disorders, health-related quality of life, and grief reactions).

**Main results.** The overall participation rate was 69.6% (638 of 917 patients), and this study assessed 332 patients who had died at the time of analysis. Participants were more likely to be Hispanic than nonparticipants, and patients who died were more likely to be younger, female, uninsured, and of minority race/ethnicity. Overall, 37% (123 of 332) of patients reported having an end-of-life discussion with their physician prior to completing the survey. Patients who had such discussions had worse performance status, shorter survival, worse quality of life, and were more likely to be cared for at 2 of the recruitment sites. Because of these imbalances, final analyses used weighted propensity scores to balance these differences. In the weighted analyses, patients who had end-of-life discussions were more likely to prefer less aggressive care and accept that their condition was terminal. After adjusting for these preferences and acceptance levels, patients who had end-of-life discussions were less likely to receive aggressive care near death, including use of ventila-

tors (1.6% vs. 11.0%; adjusted odds ratio [OR], 0.26 [95% confidence interval {CI}, 0.08–0.83]), ICU admission (4.1% vs. 12.4%; adjusted OR, 0.35 [95% CI, 0.14–0.90]), and resuscitation (0.8% vs. 6.7%; adjusted OR, 0.16 [95% CI, 0.03–0.80]), and were more likely to be enrolled in hospice for more than 1 week (65.6% vs. 44.5%; adjusted OR, 1.65 [95% CI, 1.04–2.63]). Based on caregiver interviews after the patient's death, patients who received less aggressive care or were enrolled in hospice for more than 1 week had a higher quality of life before death. Caregivers of patients who received aggressive care were more likely to develop major depression (adjusted OR, 3.37 [95% CI, 1.12–10.13]), feel unprepared for the patient's death ( $\beta = -0.30$ ;  $P < 0.01$ ), and have a lower quality of life ( $\beta = -0.15$ ;  $P = 0.004$ ) than caregivers of patients who did not receive aggressive care.

**Conclusion.** End-of-life discussions are associated with less aggressive care at the end of life. Patients and their caregivers had better quality of life if patients received less aggressive care.

### Commentary

Physicians often feel uncomfortable and unprepared for end-of-life discussions [1], and patients with advanced cancer often have unrealistic expectations regarding survival [2], in part as a result of the limited frank discussions with their physicians. Hospice care is utilized in just one third of all deaths and only in the last week of life for more than 30% of patients enrolled in hospice [3]. Unless physicians become more comfortable with these trying and difficult conversations, these trends are unlikely to improve. Wright and colleagues contribute valuable information to this cause by providing a thorough examination of how end-of-life discussions might influence use of aggressive care at the end of life and how patients and caregivers subsequently respond to this aggressive care. The authors found that end-of-life discussions are still relatively infrequent, occurring in approximately one third of all patients surveyed in this sample. Patients who had end-of-life discussions with their physicians were less likely to pursue aggressive care at the end of life, and those choosing less aggressive care had improved quality of life, as did their

caregivers. Detailed patient data were abstracted from the medical record and from extensive interviews with patients at baseline and caregivers at baseline and at a median of 6.5 months after the patient's death.

In this study, patients reporting end-of-life discussions were much sicker than those who did not; therefore, weighted propensity scores were used to balance the differences between groups as a means of isolating the independent association of end-of-life discussions with aggressiveness of care. Additionally, the authors controlled for patient preferences to further establish this independent association. When randomized controlled trials are not possible, use of these methods are novel and can lead to an approximation of the effect created with randomized controlled trials. However, the method is not infallible. Propensity scores can only be calculated from patient characteristics available in a database, and unmeasured factors could be important [4]. When differences between groups are profound, as seen between the patients reporting end-of-life discussions and those who did not in this study, unmeasured confounding is likely and unbalanced features likely remain. These confounders could explain some of the differences in the utilization of aggressive medical care. Perhaps including patient preferences and level of acceptance of terminal illness in the propensity score weighted analyses, rather than simply controlling for these factors in the regression analyses, could have further reduced the potential for unmeasured confounding. However, the weighted propensity score approach used by Wright and colleagues was able to strongly balance the factors that were different between patients who reported end-of-life discussions and those who did not.

Regardless of possible methodologic limitations, the results of this study are meaningful and serve as a strong

starting point for future research. Additionally, the results should reassure physicians regarding end-of-life discussions because there was no evidence that patients or their caregivers reacted poorly or had worse outcomes after these discussions. No difference in psychiatric diagnoses was evident between patients reporting end-of-life discussions and those who did not.

### Applications for Clinical Practice

As a result of these findings, physicians should take more comfort in having frank end-of-life discussions with their terminal patients. Patients appear to benefit from such discussions by choosing less aggressive care at the end of life, and, as a result, both patients and their caregivers have improved quality of life. Further research should be done to confirm such results.

—Review by Jason P. Block, MD, MPH

### References

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