Impact of Infections on the Survival of Hospitalized Advanced Cancer Patients

Reference: Thai, V., Lau, F., Wolch, G., Ju, Y., Hue, Q., Fassbender, K. *Journal of Pain and Symptom Management*. 2012; 43 (3): 549-557.

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Abstract

Context. Advanced cancer patients remain highly susceptible to infections, leading to significant morbidity and mortality. A lack of consensus on the management of infections is this population stems from the heterogeneity of the patient group, divergent goals of care, and unknown prognosis with antibiotic treatment.

Objectives. This prospective single cohort study examined the impact of infection and its treatment on the survival of hospitalized advanced cancer patients compared with a similar cohort without infection.

Methods. A total of 441 patients were referred to the palliative care (PC) consult service in a tertiary hospital over a 12-month period. The occurrence of sepsis, organ-related infection, and antibiotic use were recorded on initial PC consult. Survival was calculated from the point of PC consult to the date of death.

Results. Of these patients, 16.6% suffered a recent episode of sepsis (with or without an identifiable organ-related infection) and 23.4% had a recent episode of organ-related infection without clinically evident sepsis. Among the patients with sepsis, organ-related infection, or both, 89.7% received antibiotics (intravenous, oral, or both). Median survival of septic and nonseptic patients was 15 and 42 days, respectively. Septic patients who responded poorly to treatment (nonresponders) had a median survival of five days vs. 142 days in good responders. This equates with a hazard ratio of 9.74 for death in antibiotic nonresponders ($P<0.05$). Median survival for patients with an untreated organ-related infection (no sepsis) was 27 days compared with 48 days in a similar cohort receiving antibiotic therapy. Among patients on IV antibiotics, nonresponders had a median survival of six days vs. 108 days in responders. For patients on oral antibiotics, nonresponders had a median survival of six days vs. 70 days in responders.

Conclusion. These findings suggest that a recent episode of sepsis and/ or organ-related infection significantly reduces overall patient survival. Favorable antibiotic response is associated with an increase in median survival. These findings suggest that antibiotic treatment may prolong survival, and a time-limited trial may be indicated contingent on goals of care.

Strengths:

- Reasonably large number of patients (441)
- Prospective study
- Pertinent outcome for palliative care (survival)
- Study reflects real-life uncertainty with respect to diagnosis of infection

- Relevant patient population (hospitalized palliative care patients in AB)
- Data set complete (<1% of data missing)

Weaknesses:

- Prospective cohort study design is less powerful than other types of studies (i.e. RCTs)
- Many potentially confounding variables
- Does not report adverse effects of antibiotic therapy or effect on symptoms
- Some subjectivity with respect to determination of presence or absence of infection and response to antibiotic treatment (did not require lab or diagnostic imaging confirmation)
- Ambiguity of term sepsis and differentiation of this from organ-related infections
- Difficulty accounting for changing treatment strategies
- Unable to determine treatment response in large number of patients

Relevance to palliative care:

Infections are frequently encountered complications in palliative care patients with advanced cancer, and have been associated with reduced survival. Many factors affect the decision to investigate for and use antibiotic therapy to combat suspected or confirmed infections in these patients. The findings of this paper, which suggest that survival may be prolonged with antibiotic treatment of infections (especially in those with a good initial response to therapy), can be used by families, patients and health care providers to better understand the consequences of treating and not treating infections in advanced cancer patients. This understanding can be used to help ensure alignment of the decision-making process with the patient's desires and goals of care.