The accuracy of clinicians' predictions of survival in advanced cancer: A review

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Introduction

- The process of formulating an accurate survival prediction is often difficult but important, as it influences the decisions of clinicians, patients, and their families
- Untimely or inaccurate predictions may hinder optimal management
- Advanced cancer is typically characterized by an accelerated decline in health over the final weeks of life
- Due to the predictability of this decline, prognostication of advanced cancer patients may be easier relative to patients with early stage disease

Objective

- To review the accuracy of clinicians' predictions of survival (CPS) in advanced cancer patients

Methods

- A literature search of Cochrane Central, Embase, and Medline was conducted
- Studies were included if:
  - The subjects consisted of advanced cancer patients
  - The estimated and observed survival data indicative of clinicians' predictive ability was reported
- Studies reporting on the predictive value of biological and molecular markers were excluded

Results

- A total of 1,481 articles were identified in the literature search, of which 15 studies met the eligibility criteria
- Clinicians' predictions of survival (CPS):
  - Majority of papers recorded the expected survival time once, but the time at which survival predictions were made differed (after clinical assessment, before patient consultation, after enrolment into the palliative care service, at study entry, or after consultation)
  - Criteria for accuracy of employed predictions differed by study
- Accuracy of CPS:
  - Clinicians in five studies underestimated patients' survival (estimated-to-observed survival ratio between 0.5 and 0.92)
  - In contrast, 12 studies reported clinicians' overestimation of survival (estimated-to-observed survival ratio between 1.06 and 6)
- Patient characteristics:
  - Most common primary tumour sites were respiratory/lung, breast, gastrointestinal, and genitourinary/gynaecologic/prostate
  - Location of metastases included brain, bone, liver, lung/pleural, and soft tissue
- Clinician characteristics:
  - Most clinicians practiced either in palliative care and/or oncology
  - Three studies indicated that the accuracy of CPS was not dependent on clinicians' experience or years of practice
  - One study reported that differences in clinicians' age and sex were not significant factors for the prediction of survival
  - Several studies did not report significant differences in the accuracy of survival prediction between physicians and nurses
    - However, some studies noted a higher accuracy of CPS by physicians compared to nurses, and by residents and registrars compared to consultants

Discussion

- Clinicians tend to more often overestimate than underestimate patients' survival, as 12 studies reported optimistic predictions, while five studies included pessimistic predictions
- Comparisons across different studies are difficult, considering differences in methodology, such as the diverse criteria used by each study to determine significance, and method employed to measure the accuracy of survival predictions
- Other considerations beyond CPS and observed patient survival, including patient and clinician characteristics, models to guide clinician predictions and decision-making, and other variables influencing clinician predictions and subsequent decision-making, warrant further investigation

Conclusion

- CPS in advanced cancer patients are often inaccurate and overestimated
- Clinicians should be aware of their tendency to be overoptimistic with survival predictions
- Further investigation of predictive patient and clinician characteristics is warranted to improve clinicians' ability to predict survival
- Accurate prediction of survival, followed by honest communication of prognosis with patients and their families, are essential for the appropriate delivery of palliative care

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