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Health Policy Analysis

Which Is More Valuable, Longer Survival or Better Quality of Life? Israeli Oncologists' and Family Physicians' Attitudes Toward the Relative Value of New Cancer and Congestive Heart Failure Interventions

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ABSTRACT

Objectives: We determined how Israeli oncologists and family physicians value life-prolongation versus quality-of-life (QOL)-enhancing outcomes attributable to cancer and congestive heart failure interventions. **Methods:** We presented physicians with two scenarios involving a hypothetical patient with metastatic cancer expected to survive 12 months with current treatment. In a life-prolongation scenario, we suggested that a new treatment increases survival at an incremental cost of $50,000 over the standard of care. Participants were asked what minimum improvement in median survival the new therapy would need to provide for them to recommend it over the standard of care. In the QOL-enhancing scenario, we asked the maximum willingness to pay for an intervention that leads to the same survival as the standard treatment, but increases patient's QOL from 50 to 75 (on a 0–100 scale). We replicated these scenarios by substituting a patient with congestive heart failure instead of metastatic cancer. We derived the incremental cost-effectiveness ratio per quality-adjusted life-year (QALY) gained threshold implied by each response. **Results:** In the life-prolongation scenario, the cost-effectiveness thresholds implied by oncologists were $150,000/QALY and $100,000/QALY for cancer and CHF, respectively. Cost-effectiveness thresholds implied by family physicians were $50,000/QALY regardless of the disease type. Willingness to pay for the QOL-enhancing scenarios was $60,000/QALY and did not differ by physicians' specialty or disease. **Conclusions:** Our findings suggest that family physicians value life-prolonging and QOL-enhancing interventions roughly equally, while oncologists value interventions that extend survival more highly than those that improve only QOL. These findings may have important implications for coverage and reimbursement decisions of new technologies.

Keywords: cancer, cost-effectiveness, heart failure, quality of life, willingness to pay.

Introduction

Among health interventions, the cost of cancer treatment has received increased attention in the last decade mainly because of the very high treatment costs associated with newly developed chemotherapies and biological drugs. The debate over cancer drugs has focused not only on the costs of treatments but also on their relatively modest benefits, as many new drugs, such as those targeted at patients with metastatic disease, produce relatively small gains in life expectancy or quality of life (QOL) [1].

Coverage decisions on new technologies may be based on society's willingness to pay (WTP) for a life-year or a quality-adjusted-life-year (QALY) gained, using an implicit or explicit cost-effectiveness ratio to determine value for money. Acknowledging the unique circumstances of end-of-life care, several jurisdictions have adopted special mechanisms for coverage and reimbursement decisions on cancer drugs. Reimbursement agencies tend to use more flexible criteria to value cancer drugs, even when their cost-effectiveness ratio is higher than the implicit or explicit threshold that determines "good value for money" [2].

Practicing oncologists are frequently on the front line of this controversy, having to decide whether to offer their patients new and expensive treatments, sometimes not included in the health insurance benefits package. Recently, several studies from the United States and Canada have explored the implicit cost-effectiveness ratios that oncologists used to determine whether an intervention provides good value for money [3–7]. The findings suggest that oncologists are willing to prescribe treatments with a substantially higher (unfavorable) cost-effectiveness ratio for life-prolonging compared with interventions that improve only patients' QOL. These surveys, however, have not examined whether physicians place a higher value on

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cancer care as compared with care for other life-threatening conditions.

Indeed, advanced congestive heart failure (CHF) is similar to metastatic cancer, in that both are life-threatening medical conditions. Although drug therapy for CHF may be substantially cheaper than cancer drugs, the cost of several implantable devices such as left ventricular assist devices and cardiac resynchronization therapy devices may exceed US $100,000 and their cost-effectiveness remains uncertain [8,9].

Similar to oncologists, family physicians may also be involved in their patients' decisions about whether to opt for care of very costly treatments, sometimes with only low potential benefits. Because they are exposed to a wide variety of medical conditions and perhaps because of other factors, family physicians may have different and broader views on the cost-effectiveness of health interventions than those possessed by oncologists. In this study, we explore the implicit incremental cost-effectiveness ratio suggested by oncologists and family physicians in Israel, for both life-prolonging and QOL-enhancing outcomes attributable to innovative cancer and CHF interventions. On the basis of results from previous analyses [3,4], we hypothesized that physicians would value life-prolonging interventions higher than QOL-enhancing ones and that the implied cost-effectiveness ratio would be higher for cancer interventions than for interventions for heart failure, due to a "cancer premium," suggesting that individuals grant cancer treatments special status and would be willing to pay more for cancer treatments than for other interventions.

Methods

The Hypothetical Clinical Scenarios

Each oncologist and family physician was asked to consider four hypothetical clinical scenarios (Boxes 1 and 2). The scenarios relating to cancer treatment were adapted from previous surveys [3–7].

The life-prolonging scenario (Box 1) involved a patient with metastatic cancer expected to survive 12 months with standard medical treatment at an annual cost of $25,000. We then presented respondents with a scenario describing a new treatment at a total cost of $75,000 (incremental cost of $50,000 over the standard of care). Physicians were asked what minimum improvement in median survival (in terms of months of survival gain) the drug would need to provide for them to recommend it over the standard of care. The physicians were asked to assume that the patient does not bear direct cost/co-payment for the medication. We replicated this scenario with similar details, but substituting a patient with CHF (New York Heart Association [NYHA] class IV) instead of metastatic cancer.

The QOL-enhancing scenario (Box 2) involved a second patient with metastatic cancer, expected to survive 12 months with standard medical treatment at an annual cost of $25,000. The QOL of this patient (on a 0–100 scale, with 0 representing the worse QOL and 100 the best QOL) was assumed to be 50. Physicians were asked to indicate the highest cost at which they would recommend a new medication that would increase the patient's QOL from 50 to 75 on the same scale, but would have no impact on the patient's survival. As in the life-prolongation scenario, we replicated this scenario for a patient with CHF.

To assess oncologists' and family physicians' general attitudes toward the cost of cancer and CHF care, we further asked, "what do you think is a reasonable definition of 'good value for money' or cost-effectiveness ratio per life-year gained (regardless of patient's QOL) in cancer care? (and CHF care)?" Finally, we collected demographic information and medical training and practice characteristics.

Box 1–Life-prolonging scenario

> Imagine that large randomized phase III trials have shown that a new cancer medication (treatment for congestive heart failure NYHA class IV) increases survival in first-line treatment of patients with symptomatic metastatic cancer (congestive heart failure NYHA class IV). Side effects of the new treatment and the existing treatment are roughly equivalent, but a formal QOL evaluation was not performed. The total cost of the standard treatment over the course of therapy is $25,000 and leads to a median survival of 12 months. The total cost of the new medication (treatment) over the course of therapy is $75,000.
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> What minimum improvement in median survival (in months) over standard treatment's median survival would cause you to recommend the new medication (treatment) instead of standard treatment? (Assume that patients bear no direct costs for the medication).

Box 2–QOL-enhancing scenario

> Imagine that the standard-of-care drug in the first-line treatment of patients with symptomatic metastatic cancer (congestive heart failure NYHA class IV) leads to a median survival of 12 months. Patients treated with the standard-of-care drug experience an average score of 50 (on a 0–100 QOL scale).
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> The total cost of the standard treatment over the course of 1 year is $25,000.
>
> Imagine that large randomized phase III trials have shown that a new cancer medication (congestive heart failure NYHA class IV treatment) for the same indication leads to the same survival as the standard treatment, but results in a statistically and clinically significant improvement in QOL, improving it from a score of 50 to 75 on the same 0 to 100 scale.
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> At what additional cost (in thousands of dollars) per year of treatment would you recommend the new medication (treatment) instead of the standard treatment? (Assume that patients bear no direct costs for the medication.)

Study Population and Survey Methods

We sent the questionnaire to 156 board-certified oncologists in Israel with a valid e-mail address and to a randomly selected sample of 300 board-certified family physicians received from the Israel Association of Family Physicians. The list of oncologists was compiled on the basis of the directory of the Israeli Society of Clinical Oncology and Radiotherapy and from the list of physicians practicing in general medical centers and in Israel's four health plans.

The survey questionnaire was developed and distributed by using the Qualtrics Online Survey Software (Qualtrics Labs, Inc., Provo, UT). Participants received an e-mail invitation to complete the Web-based questionnaire and a personal link to the questionnaire. To avoid ordering bias, each participant received and answered the above-mentioned scenarios in a random order (i.e., they could receive the cancer-related or the CHF scenarios first).

The study was approved by the ethics committee of the Faculty of Health Sciences of Ben-Gurion University of the Negev.

Data Analysis

The primary outcome measurers of the presented scenarios are the incremental cost-effectiveness ratio (ICER) implied by each