OP9. The cost of radiotherapy at an Ontario regional cancer centre

Earle C, Coyle D, Smith A, Agboola O, Evans WK
Ottawa Regional Cancer Centre, University of Ottawa, Canada

Background: Economic analyses of cancer therapy often require estimates of the cost of radiation. A comprehensive cost analysis, done by Wodinsky et. al. at an Ontario regional cancer centre in 1984, found the average cost of a fraction of radiation to be $123. Inflated by the Consumer Price Index (CPI) to today's dollars, this figure becomes $176. Practice has changed considerably since then with financial restrictions requiring operational efficiencies while new treatment techniques have been introduced. Therefore, we did this analysis to obtain an updated cost estimate of radiation therapy for use in Canadian economic studies.
Methods: The perspective is that of government as payer in a universal health care system. All costs are in 1996 Canadian dollars. Our centre is an ambulatory treatment and research facility located on 2 campuses, each associated with a tertiary care teaching hospital. Both campuses house 3 high-energy treatment machines, 1 cobalt machine and one treatment simulator. Direct costs of the radiation oncology program include the salaries and benefits of oncologists, nurses, secretaries, and physicists, as well as supplies and equipment, including depreciation. We used step-down allocation of overhead to distribute the costs of housekeeping, maintenance, utilities, health records, transcription, and laboratory services to the radiation program. Overhead from departments such as administration and finance was allocated by the same method. The most recent Ontario Schedule of Benefits provided physician fees. We allocated costs to the different machines and programs based on proportion of treatment time.
Results: There were 2,941 patients given 45,209 fractions of radiation at our institution in 1995/96. Breast cancer was the most common indication, accounting for 33% of treatments. This was followed by prostate cancer (18%), gynecologic malignancies (12%), and lung cancer (8%). The average cost of each fraction was $130. Single field fractions cost $100/fraction, two fields cost $114/fraction, three fields cost $143/fraction, and four field treatments cost $159/fraction. The average cost per minute of treatment was $8.36.
Discussion: With more complete costing and CPI adjustment, significant efficiencies appear to have been realized in the last 12 years. While there were methodological differences between the evaluations, the difference also likely reflects improved efficiency in the radiation delivery system, with machines operated at higher volume by fewer employees. This data will facilitate the assessment of cost-effectiveness of both alternative radiation regimens and techniques for improving the efficiency of current practice.

Earle C, Ottawa Regional Cancer Centre, University of Ottawa, 501 Smyth Road, Ottawa K1H 8L6, Canada

OP10. Integrating patients' preferences in therapeutic decisions in cancer: Development of a decision board

Ferdjaoui N[1,3], Carrere MO[1], Bremond A[1,2], Charavel M[3], Fervers B[1], Grattadour AC[2], Voog E[2], Philip T[1,2]
[1]GRESAC, ESA 5047 CNRS, Lyon France; [2]Centre Léon Bérard, Lyon, France, [3]Université Lyon2, Lyon, France

Background: Many clinical decisions in oncology are based on a choice between the toxicity of the treatment (i.e. the **patient's quality of life**) and potential survival (i.e. the **quantity of life**). In order to make such a **choice**, two components are needed: knowledge of the risks and benefits of each option (**cognitive component**) and patients' preferences concerning the potential outcome (**preferential component**).
Physicians often have a "paternalistic" attitude to their patients and make choices from their point of view. Recently, social evolution, particularly in North America, and ethical considerations brought about changes in behaviour, moving from a paternalistic model to a *shared-decision model.*
Methods: At the Centre Léon Bérard Regional Cancer Centre in Lyon, a multidisciplinary working group comprising oncologists, economists and psychologists is developing a decision board.
We have chosen the therapeutic situation of post-menopausal women with node-positive breast cancer (N<8) and positive hormonal receptors (R≥10), after surgery. In this situation, the choice to be made is both simple and complex. Women have the choice, between a better chance of relapse-free survival with chemotherapy and a better quality of life without chemotherapy. On the basis of a systematic review of the literature and the experience of the physicians and psychologist, we identified several stages in the development of a decision board.
First stage: Development of a user guide; **Second stage:** Material development of the decision board; **Third stage:** Testing the clarity of language and presentation of choices; **Fourth stage:** Testing the quality of the psychometrics with regard to validity and reliability and **Fifth stage:** Testing the general acceptability of the instrument.
Results and discussion: We have completed the first stage, writing the user's guide, which contains all of the information given by doctors to patients. It describes the main differences between the two treatments, including the results of relapse and the side-effects of chemotherapy. The second and third stages are being implemented. The comments of doctors and nurses at our Center, indicate that the shared decision model is very different from the way therapeutic decisions are now made (the paternalistic model). The main aim of the subsequent stages will be to evaluate the feasibility and acceptability of this kind of help in decision making, for both patients and physicians.

Ferdjaoui N, ESAC, Centre Léon Bérard, 28 rue Laënnec, 69008 Lyon, France

OP11. Evaluation of relative costs of the cytostatic agents Tomudex® and 5-Fluorouracil plus Leucovorin as treatments for advanced colorectal cancer

Groener MGH[1], van Ineveld BM[1], Byttebier G[2], Rutten FFH[1]
[1]Erasmus University Rotterdam, Institute for Medical Technology Assessment, Rotterdam, The Netherlands; [2]Zeneca NV, Destelbergen, Belgium

Background: The standard chemotherapeutic treatment for patients with advanced colorectal cancer consists of 425 mg/m² 5-Fluorouracil + 20 mg/m² Leucovorin (Mayo-regimen), administered 5 consecutive days and repeated at week 4, 8 and every 5 weeks thereafter. Recently a new cytostatic agent was introduced for the treatment of these patients (Tomudex®, raltitrexed, Zeneca Pharmaceuticals, Macclesfield, UK). Tomudex® is administered as an IV injection at a dose of 3 mg/m² once every 3 weeks. In an international randomised clinical trial (Phase III study, n=439) the clinical efficacy of Tomudex® was compared to that of the Mayo-regimen with 5-FU + LV. The results showed no statistical significant differences in time to progression and survival between the two groups. However, the tolerability profile showed a major advantage for Tomudex®, e.g. a lower incidence of severe leucopenia and severe mucositis. Based on the finding of equal efficacy of the two treatments, a cost-minimisation analysis was performed in order to establish which treatment induces least costs for society, specifically for The Netherlands in daily clinical practice.
Methods: Units of health care resources from the trial were combined with Dutch unit costs. A statistical analysis was performed to determine which of the non-protocol driven resource items from the trial (e.g. intensive care days, ward days, outpatient visits and General Practitioner visits) differed between countries. Where a variation was shown, since there were insufficient patient numbers from The Netherlands, OECD health data were used to adjust the resource figures for The Netherlands. The protocol driven resources (e.g. laboratory tests, CT-scans) were adjusted for The Netherlands on the basis of results from a survey among Dutch oncologists.
Results: Although there is a major difference in drug costs between 5-FU + LV and Tomudex® (about 43%) in favour of the 5-FU + LV treatment, the results showed a minor difference in the average treatment costs per patient per week, amounting to $22,41 in favour of 5-FU + LV