PP61. Adaptation of pharmacoeconomic software

Malfair Taylor SC
British Columbia Cancer Agency, Vancouver, BC, Canada

Background: A pharmacoeconomics service was recently developed at this provincial oncology centre. The new service was faced with the challenge of proving its usefulness with limited resources and equipment. Without any initial budget for pharmacoeconomics software, it was decided that a free-of-charge demonstration program would be adapted and used.
Methods: Pharmacoeconomic cost analysis software (PECAN Version 2.5.) was provided courtesy of Glaxo Wellcome. This software was designed specifically to provide a cost analysis for metastatic breast cancer. The manipulation of this software was undertaken to facilitate analyses of other sorts of cancer. Metastatic colorectal cancer was chosen as the next disease model. As part of a prospective pharmacoeconomic analysis, data collection forms were developed and utilized to capture costs including clinic visit, laboratory, physician time, nursing time and materials, pharmacy time and materials, drug acquisition, and patient out-of-pocket expenditures. Literature evaluation was used to determine adverse effect rates, and costs of managing these were incorporated. Collected data was averaged and entered into the software program. Upper and lower limits of ranges of collected data were used for sensitivity analysis.
Results: The PECAN software was successfully adapted to facilitate the cost analysis of two metastatic colorectal cancer treatment regimens.
Discussion: The successful adaptation of the PECAN software to the metastatic colorectal cancer model has allowed the pharmacoeconomics service the opportunity to demonstrate its capabilities. The service may be accessed to aid in decisions regarding guidelines, policies, and formulary requests. It is also available to investigators wishing to perform a pharmacoeconomics analysis or add a pharmacoeconomic component onto a clinical trial. As the service becomes more widely accessed, it is proposed that supportive funding will increase and newer software requiring fewer manipulations may be purchased. This undertaking has shown how a pharmacoeconomic analysis can be performed without monetary investment into a pharmacoeconomics software program.

Malfair Taylor SC, BC Cancer Agency, Pharmacy Department, 600 West 10th Ave., Vancouver, BC, V5Z 4A6, Canada

PP62. Cost/effectiveness assessment of cytogenetic and molecular biology analysis for acute leukemia's prognosis

Tonnaire G[1], Gabert J[2], Lafage M[2], Sainty D[2], Maraninchi D[2], Moatti JP[1]
[1]INSERM U379, Epidemiology and Social Sciences Applied to Medical Innovation, Institut Paoli-Calmettes, Marseille, France; [2]Institut Paoli-Calmettes, Marseille, France

Background: Some chromosomal abnormalities clearly appear as prognostic factors in acute leukemia. Using a cost/effectiveness analysis, we tried to determine the best strategy for diagnosing these abnormalities. Cytogenetic and molecular analysis were chosen for assessment. There are already numerous clinical and technical articles comparing these techniques, but they have never been assessed in terms of cost/effectiveness ratios. The aim is to show how these two techniques can substitute, or complement, one another. There is also the question of assessing the value of supplementary information obtained by cytogenetic analysis.
Method: Eleven possible strategies have been identified and analysed. 107 adult patients with de novo myeloid or lymphoid acute leukemia at diagnosis, were tested in 1995, in a single institution, by the two techniques. The anomalies retained are, on one hand, those identifiable by both techniques, i.e. the translocations t(9;22), t(8;21), t(15;17), t(4;11), t(1;19), the inv(16), and, on the other hand, some anomalies that can only be detected by cytogenetics such as monosomy 5 or 7 (or deletion of their long arms) and trisomy 8. All those anomalies constitute a group of well known prognostic markers. The effectiveness criterion is the rate of detection for the anomaly for each strategy.
Results: Considering the anomalies identifiable by both techniques, we got a rate of 18.5% with each procedure, whereas adding anomalies only detectable in cytogenetic, the rate for the cytogenetic analysis goes up to 30.8%. The cost of molecular biology obtained is US$ 241.20 for an analysis with a single parameter studied (i.e. one anomaly) and US$ 94.80 per supplementary parameter studied. The average cost of cytogenetic analysis is US$ 577.40. Whatever the number of parameters studied by molecular biology (1 to 4), cytogenetic analysis is more expensive.
Discussion: The cost/effectiveness ratios show the following results: 1 - the most cost/effective strategies are those using only one technique (cytogenetic or molecular biology); 2 - for the anomalies identifiable by both techniques and effectiveness being identical for the two types of analysis, the molecular biology is more cost/effective; 3 - if one considers all the anomalies, the molecular biology has a lesser diagnostic effectiveness than the cytogenetic; 4 - strategies combining the techniques successively (PCR and cytogenetic for failure and negative results) are more cost effective than strategies which combine simultaneously the techniques, without any loss of effectiveness. From these results from a single institution, multicentric studies of cost/effectiveness comparing a recent technology entering the hospital field (the PCR technique) and the standard technique (classical cytogenetic) are warranted in order to assess their impact in terms of health care.

Tonnaire G, INSERM U379, Institut Paoli-Calmettes, 232 Bld Sainte Marguerite, 13273 Marseille Cedex 9, France

PP63. Statistical inference and sample sizes for cost-effectiveness analyses

van den Hout W
Leiden University Medical Center, The Netherlands

Background: The aim of the presentation is to show unfavourable statistical properties of the cost-effectiveness ratio when the difference in costs or effects is not clear-cut and to propose more adequate alternatives.
Results: Consider a clinical trial that provides estimates of the differential cost ΔC and health effect ΔE of a certain policy decision, for example introducing a new medical intervention. A possible decision criterion is whether the CE-ratio $R=\Delta C/\Delta E$ is acceptable: $\{R \leq R^*\}$. The acceptability threshold R^* could for example be chosen equal to $R^*=50.000\$/QALY$. A disadvantage of this ratio criterion is that it is unstable when the effect ΔE is unclear and that negative ratios can be both favourable ($\Delta C \leq 0 < \Delta E$) and unfavourable ($\Delta E < 0 \leq \Delta C$). A better criterion is whether the cost are small compared to the effect: $\{\Delta C \leq R^* x \Delta E\}$. A disadvantage of this criterion is that it can be non-monotone. Consider two different acceptability thresholds $R^* < R^{**}$. Even if the estimated cost ΔC and effect ΔE are positive, the seemingly stricter criterion can be more probable: $Pr\{\Delta C \leq R^* x \Delta E\} > Pr\{\Delta C \leq R^{**} x \Delta E\}$. This counterintuitive behaviour can be prevented if probabilistic statements about cost-effectiveness are not separated from statements about costs or effects, that is if the probability is calculated for combined statements like $\{R \leq R^*$ and $\Delta E \geq 0\}$ or $\{R \leq R^*$ provided $\Delta E \geq 0\}$. The probability of these criteria are monotone in R^*. An approximate procedure is provided to determine the required sample size for these criteria.
Discussion: CE-ratios from trials in which either costs or effects are not clear-cut should be treated with suspicion unless this uncertainty is explicitly taken into account.

van den Hout W, Leiden University Medical Center, Medical Decision Making Unit, D6-27, PO Box 9600, 230 RC Leiden, The Netherlands

PP64. Resource utilisation in intensive chemotherapy, autologous versus allogeneic bone marrow transplantation in acute myeloid leukemia

Zittoun RA, Mandelli F, Suciu S, Keating S, Dardenne M, Berneman Z, De Witte T, Willemze R, Van Der Heyden M for the EORTC and GIMEMA Leukaemia Cooperative Group

Background: Following an induction chemotherapy, patients achieving a complete remission receive a first intensive consolidation course. Then, this is followed by allogeneic bone marrow transplantation if an HLA identical