$139 vs. $257. The incremental cost per additional patient with complete control was $70.78.
Discussion: Contrary to most other studies focussing on efficacy, this study provides effectiveness data, which reflects more closely the impact of treatments in current practice. This analysis of antiemetic treatments in the context of current practice would support the use of ondansetron for the control of emesis in breast cancer patients receiving a moderately emetogenic chemotherapy, as long as complete emesis control for a patient is valued at $70.78 or more.

Lachaine J, Faculty of Pharmacy, University of Montreal, P.O. Box 6128, Succursale Centre-ville, Montreal, Quebec H3C 3J7, Canada

OP17. Costs and quality of life in metastatic colorectal cancer

Launois R[1], Reboul-Marty J[1], de Monts MC[2]
[1]Université de Paris-Nord, Faculté de Médecine Léonard de Vinci, Bobigny, France; [2]Laboratoires Rhône-Poulenc-Rorer, Montrouge, France

Background: Colorectal cancer is one of the most frequent solid tumors with an incidence rate of 150,000 cases per year in the United States and of 140,000 cases in Europe. Every year, 26,000 new cases were observed in France. One French people out of 25 is supposed to be affected by this disease. From a prevalence point of view, 47,000 colorectal cancer are managed every year by the French health care system, 40% to 50% of them will become metastatic.
Methods: A Markov process model was designed to assess the cost-utility of two associations: irinotecan + 5-FU and oxaliplatine + 5-FU, in advanced or metastatic colorectal cancer. The cohort was followed-up from the beginning of the chemotherapy until death. Markov states were defined according to the response status, and tolls were used to take into account toxicities. Transitional probabilities were calculated using actuarial method and density function approach. In the early stages of a development of new associations, it is very important to test the sensitivity of the cost-effectiveness ratio to change the various parameters. This analysis must be done with reference to the available treatment options. We used as a baseline for irinotecan + 5-FU, the results of 4 phase II trials in monotherapy, in a second-line metastatic colorectal treatment. We used as a baseline for oxaliplatine + 5-FU, a meta-analysis which synthetized the results of 7 clinical trials, in a second-line colorectal treatment. Finally, we simulated various assumptions on efficacy and safety to find out the cost-effectiveness of the new treatment regimens with alternative profiles of clinical outcomes and economic values. The Health Utility Index was used as a canevas to build the health states, which content validity was assessed by 2 medical specialists and 3 oncologic nurses. Health state preferences were measured through patients and experts opinions. To obtain a direct evaluation of the patients' preferences, the standard gamble and the feeling thermomether methods were tested on 20 patients. In the same time, interviews were made in order to define the experts' opinion. Costs were estimated, in the public and private sector, according to four points of view: the hospital pharmacists, the hospital heads of oncologic ward, the hospital managers and the health care system. Non medical direct and undirect costs were excluded from the calculation. In both public and private sectors, six units of valuation were tested: cost attributable to the patient, cost attributable to the ward, controlled cost by the ward, per diem cost, per diem tariff and DRG cost (ISA value and analytical accounting value).
Results: Quality of life coefficients varied according to the points of view. Compared to medical doctors, the patients gave higher quality of life values for health states with toxicity in the beginning of chemotherapy (except for nausea/vomiting and for neutropenia combined with diarrhea). When the toxicity was combined with objective response or stabilisation, quality of life assessment by the patients was lower than for the medical doctors. Incremental cost-effectiveness ranking remained unchanged whatever the point of view retained. On the contrary, the incremental cost-effectiveness ratio and the dominant strategy changed according to the unit of valuation chosen to calculate the cost of hospital resources utilisation.
Discussion: The cost of a therapeutic strategy does not exist in itself. There are as many definitions of cost as possible utilisations, and to obtain credible results 4 characteristics have to be defined before valuation: the costing object, its purpose, its content and the moment when it is calculated.

Launois R, Université De Paris-Nord, Faculté De Médecine Léonard De Vinci, Département de Santé Publique et d'Economie de la Santé, 74 rue Marcel Cachin, 93017 Bobigny Cedex, France, E-mail: launois@iway.fr

OP18. Optimization of peripheral blood stem cell collection (PBSC) by leukapheresis: a case of interaction between economic and clinical assessment of an innovation

Le Corroller AG[1,2], Moatti JP[1,2], Chabannon C[4], Faucher C[1,4], Blaise D[4], Fortanier D[1,3], Ladaique P[4], Blache BL[4], Novakovitch G[4], Maraninchi D[4].
[1]I.N.S.E.R.M. Unit 379, Marseille, France; [2]Center for Econometrics, University of Paris II, France ; [3]Faculte de Sciences Economiques, University of Mediterranee, Marseille, France; [4]Institut Paoli-Calmettes, Marseille, France

Background : Using the example of substitution of peripheral blood stem cells collection to bone marrow (BM) harvest for autologous transplantation in cancer patients, our study try to illustrate the potential and limits of economic assessment starting at an early stage of medical innovation when major uncertainties still exist about the technology itself as well as its future diffusion.
Methods: We performed a cost-minimization study comparing the classical BM harvest with the initial PBSC collection protocol (3 systematic leukaphereses). We then compared these costs with those of an iterative protocol in which the number of leukapheresis sessions is not a priori decided, but rather in which leukaphereses are performed until a predetermined number of progenitors (measured by the number of CD34+ cells) has been collected. All patients were collected at the Institut Paoli-Calmettes between January 1992 and April 1994 for autograft. Direct medical costs of the procedures were estimated by measuring physical quantifies (capital and labor) arising from detailed observation carried out at the Institut Paoli-Calmettes.
Results: The average cost per patient of the BM harvest is of 4146$, and of the 3 systematic leukaphereses collection is of 5113$, i.e. 19% more costly than BM harvest. The cost comparison of an iterative PBSC procedure vs BM harvest is depending on the CD34+ threshold: PBPC is less costly if collection of $2x10^6$/kg CD34+ is considered to be sufficient for clinical reinfusion targeted, but becomes more costly if the minimum threshold for CD34+ is higher. Simulation of the iterative procedure shows the major influence of the CD34+ threshold on the PBSC collection average cost per patient, which varies from $2780 (with a threshold of $0.0.5x10^6$/kg CD34+) to $6700 (with a threshold of $10x10^6$/kg CD34+).
Discussion : One consequence of our study was to demonstrate that an iterative collection protocol (stopping leukaphereses sessions as soon as the threshold is reached) was an efficient way of minimizing cost. Following the study, the initial protocol at our institution (a priori planning of 3 leukaphereses session for all patients) was modified, and an iterative procedure was adopted (CD34+ are measured after each leukapheresis and a new session is only initiated if the $3x10^6$ /kg CD34+ threshold has not been reached). Finally the case of PBSC suggests that ongoing economic evaluation starting as early as possible throughout the "Research & Development" process can help predict subsequent diffusion of the technology over time, and potentiel evolution in expected clinical utilisation and costs.

Le Corroller AG, INSERM U379, Institut Paoli-Calmettes, 232, Bd Saint Marguerite, 13273, Marseille, France