Introduction

Gemcitabine (Gemzar®) belongs to the group of new third-generation chemotherapeutic agents (vinorelbine-Navelbine®, docetaxel-Taxotere® and paclitaxel-Taxol®) that are now commonly used in combination with cisplatin or carboplatin in the 1st-line treatment of advanced non-small cell lung cancer (NSCLC).

A phase III randomized clinical trial (Scagliotti et al, 2002) for patients with advanced NSCLC, gemcitabine / cisplatin (Gem/Cis), paclitaxel / carboplatin (Pac/Carbo) and vinorelbine / cisplatin (Vin/Cis) showed no significant differences in efficacy with regards to overall survival and time to disease progression (TTP).

The aim of the analysis was to determine which of the three chemotherapy regimens described in the clinical trial was the most cost minimizing from the French Social Security system (FSSS).

Method

A cost-minimization analysis was performed based on resources used in this trial. Only the French Social Security system (FSSS) perspective was considered.

Study design

Trial data were associated to the following direct healthcare costs considered for each chemotherapy regimen described in the Scagliotti phase III randomized clinical trial:

- chemotherapy drugs acquisition costs (onerous drugs list - reimbursed over DRGs, GERS data),
- concomitant drugs acquisition costs (onerous drugs list - reimbursed over DRGs, GERS data),
- chemotherapy administration costs (national DRGs scale, published in August 2004),
- hospitalizations due to adverse events (national DRGs scale, published in August 2004). Table 1: Regimens schedules

The only concomitant medication used in the Scagliotti trial and reimbursed over DRGs is Erythropoietin (EPO). The EPO vials used in the clinical trial are presented in Table 3.

Concomitant medications costs

Total costs

Whatever the chemotherapy regimen considered, the French Social security System reimburses the same DRG (DRG 8300) for each chemotherapy session over new agents used for the patient. Results are presented in Table 4.

Hospitalization for adverse events costs

Cycles / patient

Table 7: Hospitalization costs used in the analysis

Results

Chemotherapy drugs acquisition costs

Chemotherapy drugs acquisition costs were determined based on:

- a body square area of 1.8 m² / patient,
- an average chemotherapy cycles of 4.02 for Gem/Cis, 4.23 for Pac/Carbo and 3.25 for Vin/Cis,
- Cisplatin and Carboplatin costs were not reimbursed over but included in DRGs.

Discussion

Gem/Cis is the least expensive regimen for the French MOH when compared to Vin/Cis and Pac/Carbo (2 337 €) is explained by a higher chemotherapy acquisition cost which is not offset by lower costs elsewhere,

- the total cost difference between Gem/Cis and Pac/Carbo (2 337 €) is explained by a higher chemotherapy acquisition cost which is not offset by lower costs elsewhere,
- the total cost difference between Gem/Cis and Vin/Cis (1 597 €) is explained by a higher rate of adverse event hospitalizations.

Conclusions

Gemcitabine / Cisplatin administered at a 3-week cycle is cost-minimizing when compared to Paclitaxel / Carboplatin at a 3-week cycle and Vinorelbine / Cisplatin at a 4-week cycle.

- Total direct costs must take into account, besides drugs acquisition costs, drug administration and adverse events hospitalization costs.
- Notably, hospitalization costs due to adverse events are a major cost driver for some chemotherapeutic regimens.
- Cisplatin administer with gemzar on D1, based on French local practicies, decreases the Gem/Cis arm costs to 9 040 €.

References


2Gers: company which follows sales from wholesalers to pharmacists (official prices not including eventual rebates).

3Use as observed in Scagliotti’s trial but not published


Table 1: Regimens schedules

Table 2: Chemotherapy drugs acquisition

Table 3: Concomitant medication costs

Table 4: Administration costs

Table 5: Frequency of adverse events

Table 6: Hospital costs used in the analysis

Table 7: Hospitalization costs used in the analysis

Table 8: Total costs per patient

Table 9: Total costs

Table 10: Total costs per patient

Table 11: Total costs