

A cost-minimization analysis of first line polychemotherapy regimens in the treatment of advanced non-small cell lung cancer

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Abstract

Objectives

Five polychemotherapy regimens, one of which may be given by two different administration schedules: gemcitabine-cisplatin (GC), vinorelbine-cisplatin (VC), docetaxel-cisplatin (DC), paclitaxel-cisplatin (PC) and paclitaxel-carboplatin (PCa), are commonly used in first-line treatment of advanced non-small cell lung cancer. Whereas taxans have to be administered within a conventional day hospitalisation setting, gemcitabine and vinorelbine can be administered in a domiciliary care setting. The purpose of the study is to determine which case management minimises costs for the French Health care system while ensuring patient safety.

Methods

A Markov model was constructed in order to estimate the cost consequences of domiciliary administrations for gemcitabine and vinorelbine chemotherapies without cisplatin, compared to taxans administered only at hospital. Transition probabilities are based on the Scagliotti (2002), Fossela (2002), Smit (2003), published randomized trials. No differences in efficacy were found between any of the regimens. A cost-minimisation analysis was performed.

The costs of treatments were calculated by adding DRG costs, high cost drugs reimbursed beyond the DRGs, and travel expenses. Costs of severe toxicities, diagnosis and palliative care are included.

Results

With the conservative hypothesis that the treatments do not differ in efficacy and with no more than two domiciliary administrations per cycle, GC and VC emerge as the least expensive regimens with a follow-up costs of 7,315 € [95% CI: 7,064-7,570] and 7,686 € [95% CI: 7,378-7,997]. Administered within a conventional day-hospitalisation, their follow-up costs are 8,109 [95% CI: 7 799 – 8 419] and 8,943 €, [95% CI: 8 554 – 9 338] respectively. Taxans DC, PC and PCa at hospital have a follow-up costs of 8,778 € [95% CI: 8,185-9,108], 9,068 € [95% CI: 8,367-9,446], and 10,140 € [95% CI: 9,436-10,510]. To obtain the same overall costs for GC and DC, the acquisition cost of gemcitabine has to be increased by 50%.

Conclusion

Following the national guidelines on chemotherapy domiciliary care infusion, out of hospital treatment is more efficient in the context of equivalent efficacy from the French health care system perspective.