

## **Cost-effectiveness analysis of goal-directed hemodynamic treatment of elderly hip fracture patients: before clinical research starts**

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**BACKGROUND:** Health economic evaluations are increasingly used to make the decision to adopt new medical interventions. Before such decisions, various stakeholders have invested in clinical research. But health economic factors are seldom considered in research funding decisions. Cost-effectiveness analyses could be informative before the launch of clinical research projects, particularly when a targeted intervention is resource-intensive, total cost for the trial is very high, and expected gain of health benefits is uncertain. This study analyzed cost-effectiveness using a decision analytic model before initiating a large clinical research project on goal-directed hemodynamic treatment of elderly patients with hip fracture.

**METHODS:** A probabilistic decision analytic cost-effectiveness model was developed; the model contains a decision tree for the postoperative short-term outcome and a Markov structure for long-term outcome. Clinical effect estimates, costs, health-related quality-of-life measures, and long-term survival constituted model input that was extracted from clinical trials, national databases, and surveys. Model output consisted of estimated medical care costs related to quality-adjusted life-years.

**RESULTS:** In the base case analysis, goal-directed hemodynamic treatment reduced average medical care costs by €1,882 and gained 0.344 quality-adjusted life-years. In 96.5% of the simulations, goal-directed hemodynamic treatment is less costly and provides more quality-adjusted life-years. The results are sensitive to clinical effect size variations, although goal-directed hemodynamic treatment seems to be cost-effective even with moderate clinical effect.

**CONCLUSION:** This study demonstrates that cost-effectiveness analysis is feasible, meaningful, and recommendable before launch of costly clinical research projects.