

Treatment of postoperative anaemia in orthopaedic surgery: a budget impact analysis from a hospital perspective

OBJECTIVES

Background: Standard postoperative anaemia management includes oral iron or intravenous iron supplementation (iron sucrose complex, ISC), erythropoietin therapy and blood transfusion. Introduction of a new intravenous iron formulation (ferric carboxymaltose, FCM), more expensive than ISC but with simplified administration modalities, could have economic consequences for hospital.

Purpose: To assess the budget impact of introducing FCM in the current practice for treating postoperative anaemia in the Department of Orthopaedic Surgery at a university hospital.

METHODS

Budget impact model (BIM) is built from a hospital perspective.

Study population consists of patients who underwent total hip or knee replacement in 2011.

Costs are estimated by micro-costing for treatment costs and questionnaire for nursing costs.

Reference case is based on the present patient case-mix.

Simulations consider different substitutions: simulation A 100% ISC for FCM, simulation B 100% ISC and 50% oral iron for FCM and simulation C 100% ISC and 100% oral iron for FCM.

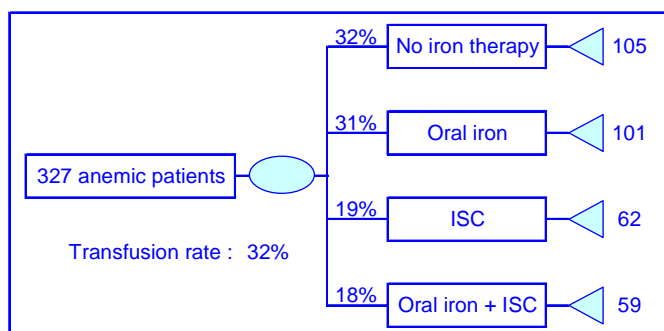
One-way sensitivity analysis is applied to simulations.

RESULTS

Study population:

314 patients (210 women / 104 men) underwent 327 operations (205 THR / 122 TKR)
Mean age: 71.6 ± 1.3 years / Mean length of stay: 10.6 ± 0.8 days

Reference case:



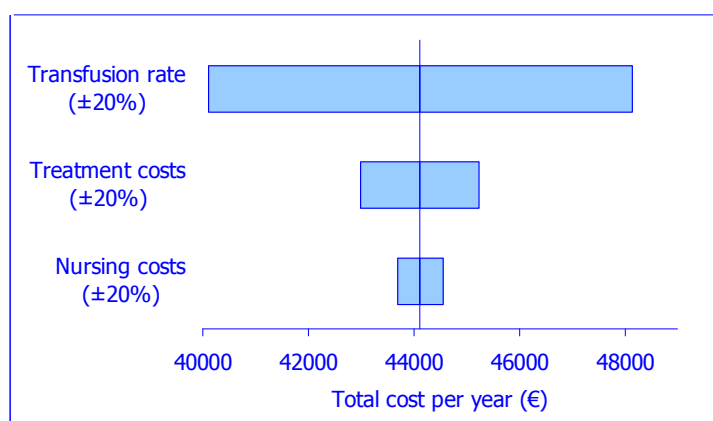
Costs per treatment:

Treatment	Oral iron	ISC	FCM	Transfusion
Treatment costs	0,57 €	21,60 €	75,00 €	424,67 €
Nursing costs	-	36,74 €	6,46 €	6,46 €
Material costs	-	2,14 €	1,00 €	-
Costs per treatment	0,57 €	60,48 €	82,46 €	431,13 €

Average costs per patient & Total costs per year:

	Average costs per patient	Total costs per year
Reference case	161,63 €	44 124,20 €
Simulation A	169,83 €	46 364,95 €
Simulation B	195,93 €	53 488,94 €
Simulation C	219,85 €	60 018,12 €

One-way sensitivity analysis (Tornado diagram) - reference case:



DISCUSSION

BIM is very sensitive to variations in transfusion rate, moderately sensitive to variations in treatment costs and insensitive to variations in nursing costs.

Economically, simulation A is largely feasible, simulation B is feasible, but simulation C is not.

CONCLUSIONS

FCM will be added to the hospital formulary. A further study is needed to define substitution modalities in the real-life situation. BIM has contributed to this decision-making process.

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