A COST-EFFECTIVENESS ANALYSIS OF ERYTHROPOIESIS-STIMULATING AGENTS FOR TREATING CANCER-TREATMENT INDUCED ANAEMIA


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Aim: Erythropoiesis-stimulating agents (ESAs) are licenced for use in conjunction with red blood cell transfusions (RBCTs) to improve cancer-treatment induced anaemia (CIA) and reduce the need for transfusions. Since there is currently mixed evidence on the cost-effectiveness of ESAs in CIA, we aim to assess the cost-effectiveness of ESAs from the perspective of the UK NHS.

Methods: A decision analytic model was built, whose parameters values were obtained by a systematic review of clinical effectiveness of ESAs in CIA. All ESAs were assumed to have the same clinical effectiveness, only differing in cost. Treatment arms considered were RBCT only and ESAs in addition to RBCTs. Average costs and quality-adjusted life years (QALYs) per person were calculated using methods recommended by the National Institute of Health and Care Excellence (NICE). The model evaluated the costs and QALYs when patients are susceptible to CIA and long-term QALYs as a result of possible survival difference between the ESAs and only RBCT arms.

Results: In the base case, using drug prices from British National Formulary (BNF), the majority of ESAs appear to be cost-effective compared to only RBCT use, at a willingness to pay threshold of £30,000 per QALY. Results from probabilistic sensitivity analysis show that the least expensive ESA has a 54% probability of being cost-effective compared to RBCTs only at the £30,000 per QALY threshold. Additional sensitivity analyses demonstrate that survival is one of the most influential and uncertain parameters. Assuming ESAs do not affect survival, they do not appear cost-effective using BNF prices, but have more favourable results when using discounted wholesale acquisition costs.

Conclusions: Evidence for survival benefits from ESAs is highly uncertain and therefore the cost-effectiveness of these ESAs is also uncertain. However, if ESAs are assumed not to affect survival and lower wholesale acquisition costs can be agreed, the likelihood of ESAs being cost-effective increases.

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