

Avatrombopag and lusutrombopag for thrombocytopenia in people with chronic liver disease needing an elective procedure: a systematic review and cost-effectiveness analysis

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Plain English summary

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Plain English summary

Thrombocytopenia, which is a reduction in platelet numbers in the blood, is a common complication of chronic liver disease. It increases the risk of bleeding during procedures including liver biopsy and transplantation. It can delay or prevent procedures, leading to illness and death. Established treatment largely involves platelet transfusion before the procedure or as rescue therapy for bleeding. This report aims to systematically review the clinical effectiveness and estimate the cost-effectiveness of the first two recently licensed treatments, thrombopoietin receptor agonists avatrombopag (Doptelet®; Dova Pharmaceuticals, Durham, NC, USA) (60 mg if platelet count is < 40,000/ μ l and 40 mg if platelet count is 40,000–< 50,000/ μ l) and lusutrombopag (Mulpleta®; Shionogi Inc., London, UK) (3 mg if platelet count is < 50,000/ μ l), compared with established treatment.

From a comprehensive search, six studies were included. Clinical effectiveness analysis showed that avatrombopag and lusutrombopag were superior to no thrombopoietin receptor agonist in avoiding both platelet transfusion and rescue therapy. Only avatrombopag seemed superior to no thrombopoietin receptor agonist in reducing rescue therapy alone.

Cost-effectiveness analysis found that lusutrombopag and avatrombopag were more expensive than no thrombopoietin receptor agonist over a lifetime, as the savings from avoiding platelet transfusions were exceeded by the drug cost, and without long-term health benefits. The probabilistic sensitivity analysis, which examined the effect of uncertainty, showed that no thrombopoietin receptor agonist had 100% probability of being cost-effective. Uncertainty about the price of avatrombopag and the content and costs of platelet transfusions and the potential under-reporting of use to estimate platelet transfusion-specific mortality had the greatest impact on results. If the price of avatrombopag was (confidential information has been removed) below the price of lusutrombopag, avatrombopag would become cost saving in the 40,000–< 50,000/ μ l subgroup. However, although in some scenarios avatrombopag costs could decrease in the 40,000–< 50,000/ μ l subgroup to around 10% more than the cost of no thrombopoietin receptor agonist, there would be negligible health benefits and the incremental cost-effectiveness ratios would remain very high, meaning that lusutrombopag and avatrombopag would still not be considered cost-effective.

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This report

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