

Economic Evaluation of Avatrombopag for Elective Diagnostic Procedure or Surgery of Thrombocytopenia in Adult Patients with Chronic LIVER Disease (CLD) in China



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Objective

To perform a cost-minimization analysis (CMA) comparing Avatrombopag with platelet transfusion for the treatment of preoperative thrombocytopenia in patients with chronic liver disease (CLD) based on a health system perspective in China.

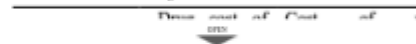
Methods

The target patients were adults with CLD complicated with thrombocytopenia who required elective diagnostic procedures or surgery. A decision tree model was developed. Both intervention and control groups distinguished between a lower and a higher baseline platelet count cohorts, and patients requiring platelet transfusions were separated into a single and a double transfusion groups. The model considered patient proportions, Avatrombopag cost, transfuse cost and medical expenses of platelet transfusion, cost of treatment of post-transfusion adverse events, and cost of rescue procedure for bleeding, which were obtained from ADAPT-1 and ADAPT-2 phase III clinical trials and clinician interviews. Scenario analyses of the drug cost changes and the Asian subgroup, and a one-way sensitivity analysis were conducted.

Results

The average cost of the Avatrombopag group and the platelet transfusion group were ¥13,235 and ¥11,054 respectively (\$2161 difference). The incremental cost was zero when the price of Avatrombopag decreased to \$788 (13.0% decrease). The incremental cost in the Asian subgroup was \$621 higher compared with the whole population group. Sensitivity analysis results indicated that the drug cost of Avatrombopag had the greatest effect on the model results.

Figure 2 Base case results



Conclusions

The average cost of the Avatrombopag group was higher than that of the platelet transfusion group, but the result may have been overestimated due to poor platelet accessibility in some areas of the country resulting in higher platelet acquisition costs, or the possibility of performing the surgery despite lower platelet counts, thereby increasing the risk of bleeding. Other therapeutic values would be further evaluated in the future in the context of the real-world situation of the Chinese population.

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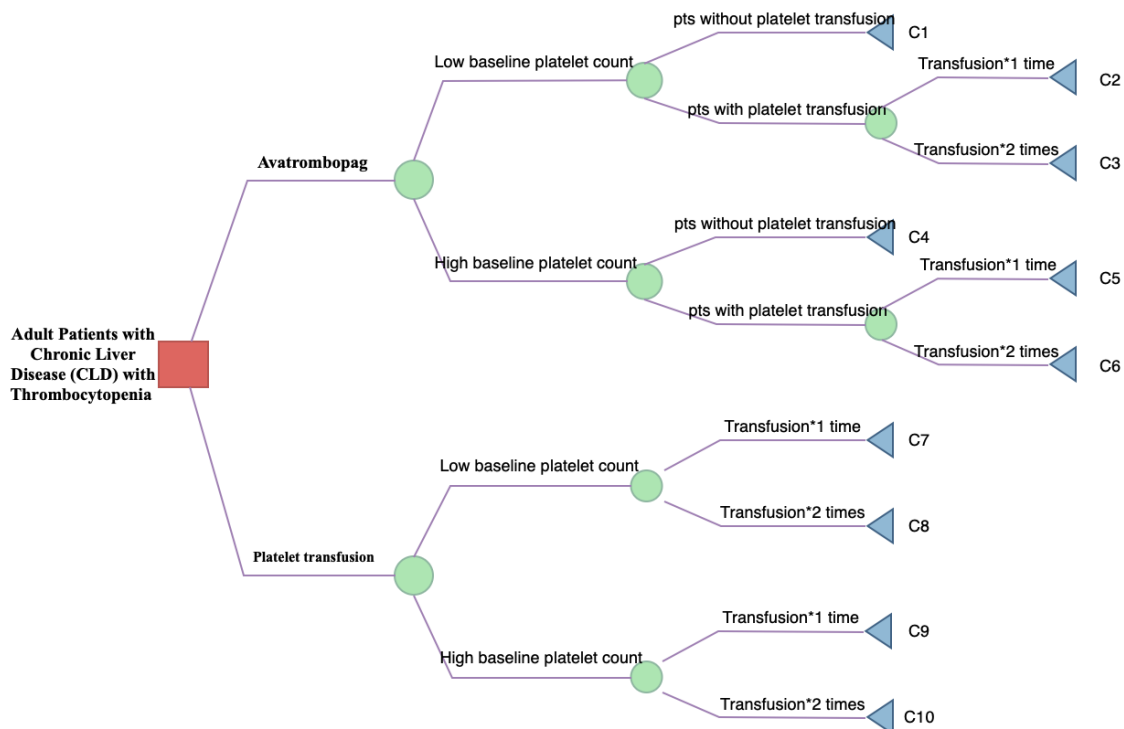
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METHODS

The target patients were adults with CLD complicated with thrombocytopenia who required elective diagnostic procedures or surgery. A decision tree model was developed. Both intervention and control groups distinguished between a lower and a higher baseline platelet count cohorts, and patients requiring platelet transfusions were separated into a single and a double transfusion groups. The model considered patient proportions, Avatrombopag cost, number, cost and medical expenses of platelet transfusion, cost of treatment of post-transfusion adverse events, and cost of rescue procedure for bleeding, which were obtained from ADAPT-1 and ADAPT-2 phase III clinical trials and clinician interviews. Scenario analyses of the drug cost changes and the Asian subgroup, and a one-way sensitivity analysis were conducted.

Figure 1 Decision tree model



RESULTS

The average cost of the Avatrombopag group and the platelet transfusion group were ¥ 13,235 and ¥ 11,054 respectively (\$2181 difference). The incremental cost was zero when the price of Avatrombopag decreased to \$788 (18.6% decrease). The incremental cost in the Asian subgroup was \$621 higher compared with the whole population group. Sensitivity analysis results indicated that the drug cost of Avatrombopag had the greatest effect on the model results.

Figure 2 Base case results

| | Drug cost of Avatrombopag (yuan) | Cost of platelet transfusion and adverse event management (yuan) | Cost of rescue procedure for bleeding (yuan) | Average cost (yuan) | Incremental (yuan) |
|----------------------|----------------------------------|------------------------------------------------------------------|----------------------------------------------|---------------------|--------------------|
| Avatrombopag | 11713 | 1225 | 297 | 13235 | / |
| platelet transfusion | 0 | 9974 | 1080 | 11054 | -2181 |

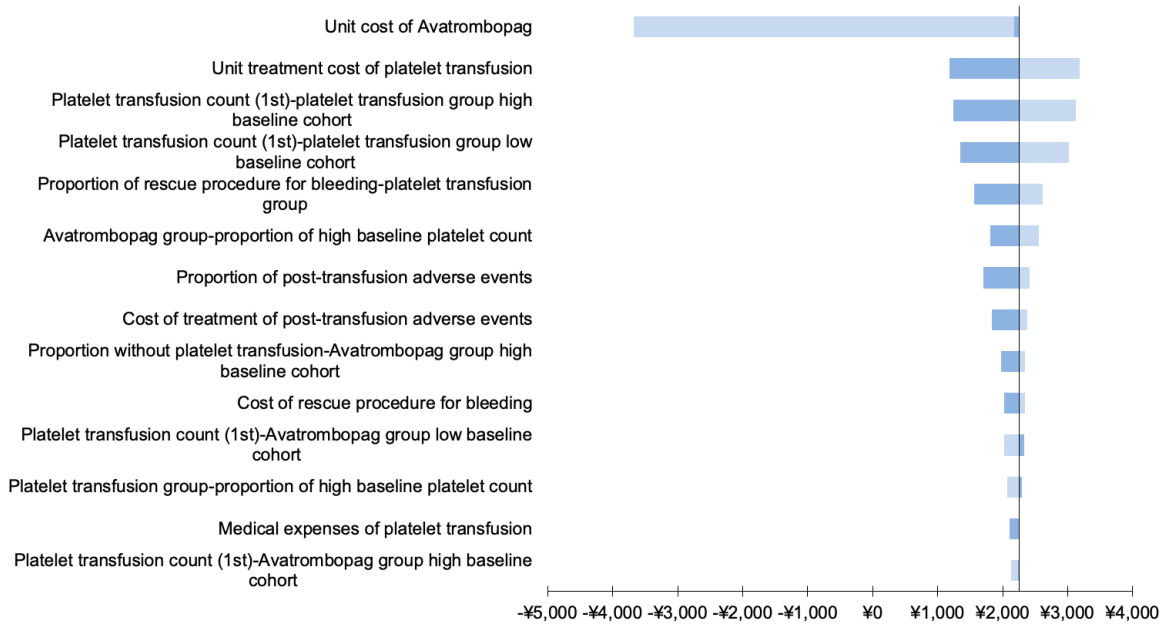
Figure 3 Drug cost scenario analysis

| Drug cost of Avatrombopag (yuan) | Average treatment cost of Avatrombopag per patient (yuan) | Average treatment cost of platelet transfusion per patient (yuan) | Incremental cost (yuan) | |
|----------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------|-------------------------|-------|
| Prime cost | 968 | 13235 | 11054 | 2181 |
| 18.6% decrease | 788 | 11054 | 11054 | 0 |
| 30% decrease | 678 | 9726 | 11054 | -1328 |
| 40% decrease | 580 | 8552 | 11054 | -2502 |
| 50% decrease | 484 | 7378 | 11054 | -3676 |
| 60% decrease | 387 | 6204 | 11054 | -4850 |

Figure 4 Tornado Diagram



Tornado Diagram



CONCLUSIONS

The average cost of the Avatrombopag group was higher than that of the platelet transfusion group, but the result may have been overestimated due to poor platelet accessibility in some areas of the country resulting in higher platelet acquisition costs, or the possibility of performing the surgery despite lower platelet counts, thereby increasing the risk of bleeding. Other therapeutic values would be further evaluated in the future in the context of the real-world situation of the Chinese population.

DISCLOSURES

Declaration of interests

We declare no competing interests.

Funding

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