Economic Evaluation of Using Romiplostim for Early Immune Thrombocytopenia in Qatar

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Introduction

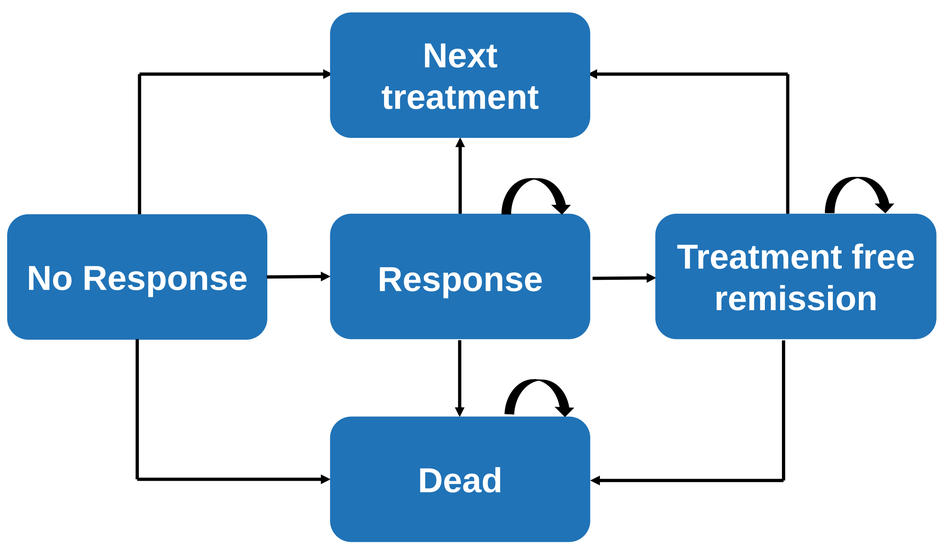
- Immune thrombocytopenia (ITP) is an autoimmune condition which reduces the platelet count; thus, increases the risk of bleeding. It is estimated ITP affects around 200 thousand patients worldwide
- ITP imposes over US$ 400 million on the US total healthcare expenditure. Introduction of the newly emerging Thrombopoietin Receptor Agonists (TPO-RA) led to positive clinical outcomes.

Objective

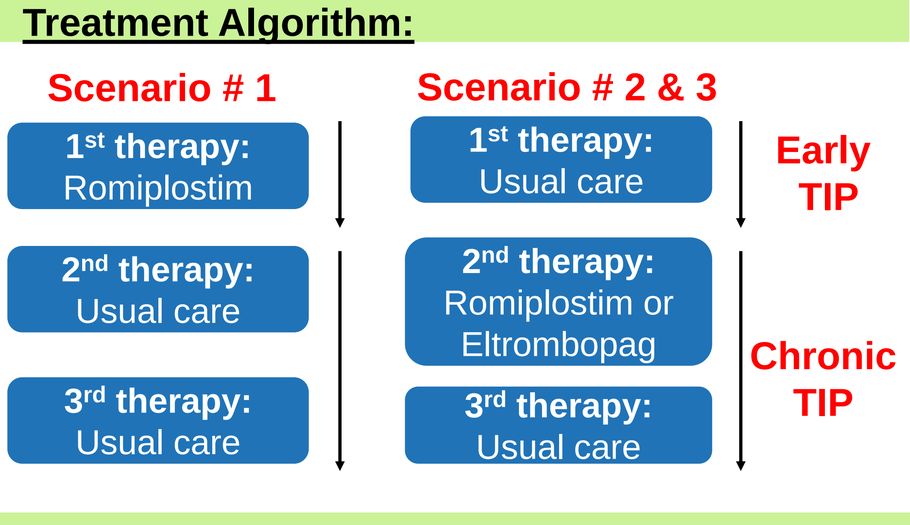
- To evaluate the emerging clinical and economic consequences of various treatment algorithms of ITP Qatar
- Evaluate the cost-effectiveness of the following regimens:
  1. Romiplostim (ROMI) in early ITP
  2. Romiplostim in chronic ITP
  3. Eltrombopag (ELTRO) in chronic ITP.

Methods

- **Study Design:** Cost-utility using Markov model:



- **Treatment Algorithm:**



- **Model Inputs:**

Patients	N=47, 30 y/o, 65% Females, 77 - 85 Kg
Clinical	Response, relapse, duration of response, bleeding events
Economic	Treatment costs, monitoring expenses, administration cost, cost of bleeding events

Results

Table (1): Cost-effectiveness outcomes

Treatment regimen	Overall cost in QAR (US$)	Overall QALY
ROMI in Early ITP	1,859,980 (510,899)	16.92
ROMI in Chronic ITP	1,956,297 (537,355)	16.86
ELTRO in Chronic ITP	1,883,725 (517,421)	16.58
Incremental cost effectives ratio in QAR (US$)		**Conclusion**
Early ROMI vs Chronic ROMI	- 96,317 (26,456)	Early ROMI is dominant
Chronic ROMI vs Chronic ELTRO	72,572 (19,934)	ROMI is cost-effective
Early ROMI vs Chronic ELTRO	- 23,745 (6,522)	Early ROMI is dominant

Budget impact analysis outcomes

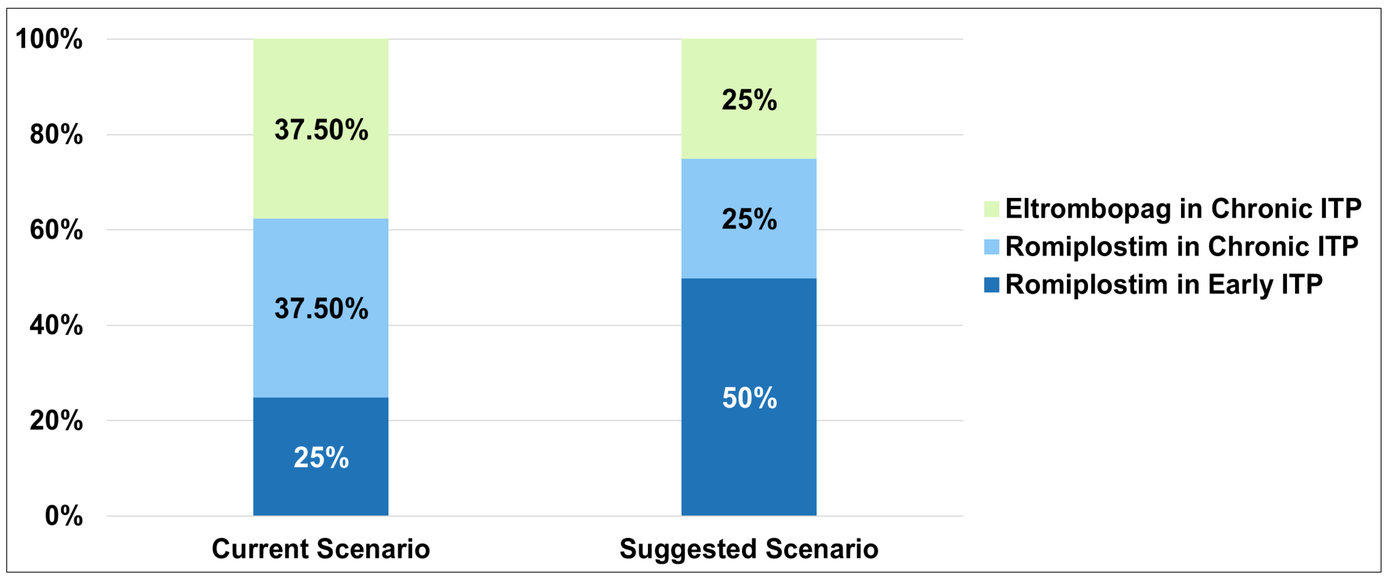


Figure (1): Market share of evaluated regimens

- Replacing current regimen with early ROMI led to increasing cost of drug acquisition, but was budget saving to other healthcare resources:
  - Drug acquisition cost: Led to increasing budget costs
  - Drug administration cost: Led to budget saving
  - Rescue therapy cost: Led to budget saving
  - Monitoring procedures costs: Led to budget saving
  - Costs of bleeding events: Led to budget saving.
- **The savings in other resources outweighed the additional drug costs, resulting in a net reduction of total healthcare expenditures by QAR 127,137 (US$ 34,327) over five years.**

Sensitivity Analysis

- **Deterministic sensitivity analysis:**
  - Percentage of romiplostim early ITP treatment-free remission was found to be the strongest factor influencing the ICER
- **Probabilistic sensitivity analysis:**
  - Initiating ROMI in early ITP is dominant when compared to initiating ROMI in chronic ITP and ELTRO in Chronic ITP over lifetime.

Conclusion

- Early initiation of ROMI in ITP is both clinically effective and cost saving compared to late initiation
- The budget impact analysis over five years supported the economic outcomes, indicating potential healthcare savings
- Sensitivity analyses showed that these results are robust to uncertainty.

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