Ryeqo (Relugolix/Estradiol/Norethisterone) compared to Tranexamic Acid for Symptomatic Uterine Fibroids in Premenopausal Women (20 to 40-year-old): A Cost-utility Analysis

EE496

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01   Background

Uterine fibroids (UF) affect up to 80% of women in their lifetime, with symptoms such as heavy menstrual bleeding and pelvic pain (El Kafas, Ali & Al-Hendy, 2018). In the UK, UF places a significant burden on the NHS, with UF-related hysterectomies costing over £103 million in 2017-2018 (Strong et al., 2020). Current treatments include hormonal options like levonorgestrel-releasing intrauterine systems (IUS) and non-hormonal alternatives such as tranexamic acid (TXA). Recently, a novel hormonal treatment called Ryeqo (Relugolix/Estradiol/Norethisterone) has been approved for use in the UK for moderate to severe UF symptoms (MHRA, 2021). However, there remains a gap in the literature regarding its economic evaluation in the UK, leaving uncertainty about its cost-effectiveness compared to existing treatments.
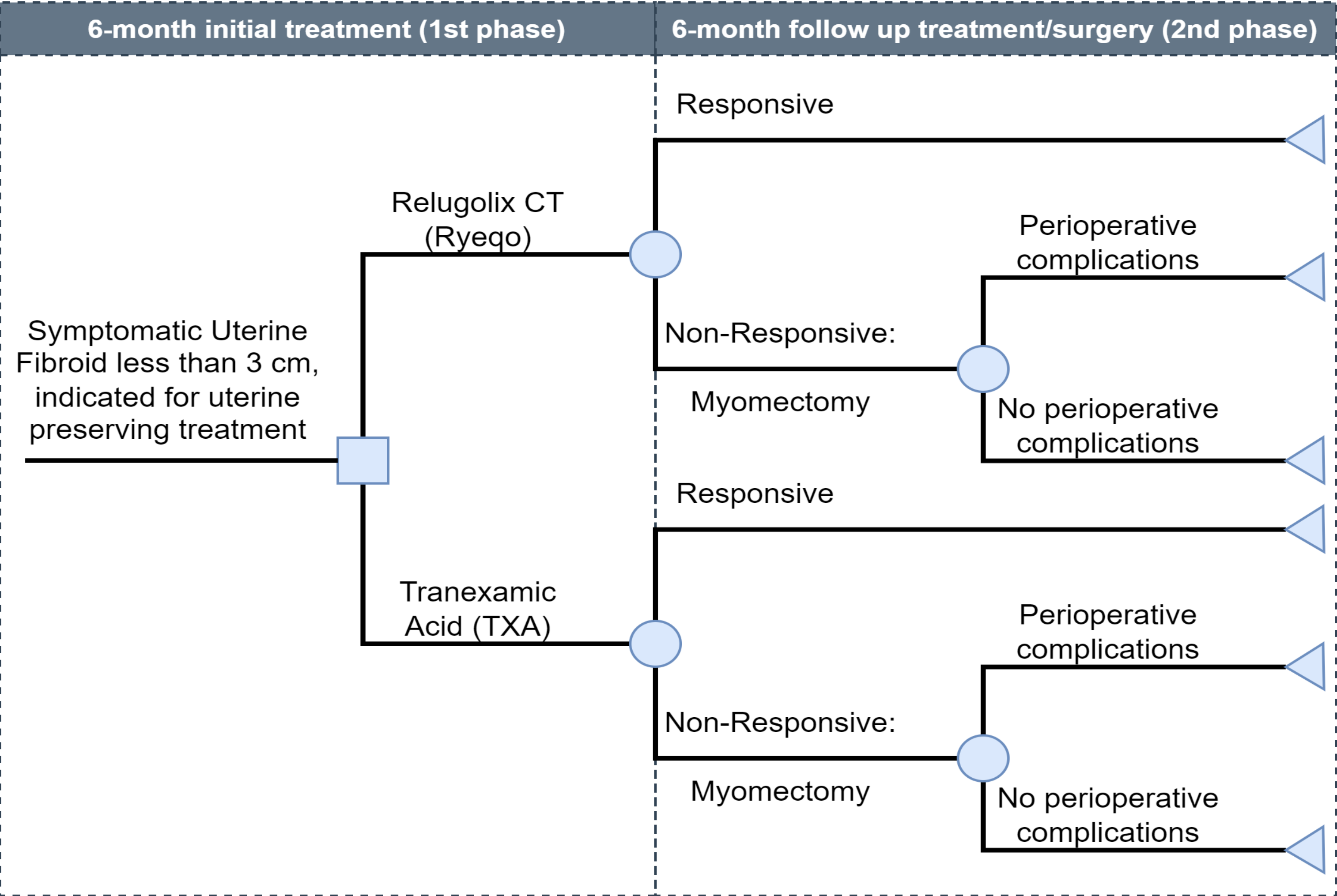

Figure 1: The Decision Tree Model used to estimate cost and effectiveness of Ryeqo and TXA

04   Results

- Base case analysis showed that Ryeqo dominated TXA, yielding lower average cost (£2,110.58 vs £2,292.38) and higher QALYs (0.77 vs. 0.74).
- The Incremental Cost-Effectiveness Ratio (ICER) is -£6,904.92/QALY, lower than the NHS threshold of £20,000/QALY.
- Sensitivity analysis indicates that the ICER is more sensitive to the cost of Ryeqo, and the change of utility of TXA has less influence on the results. Moreover, the increase in the utilities of Ryeqo and TXA is related to the reduction of the ICER.
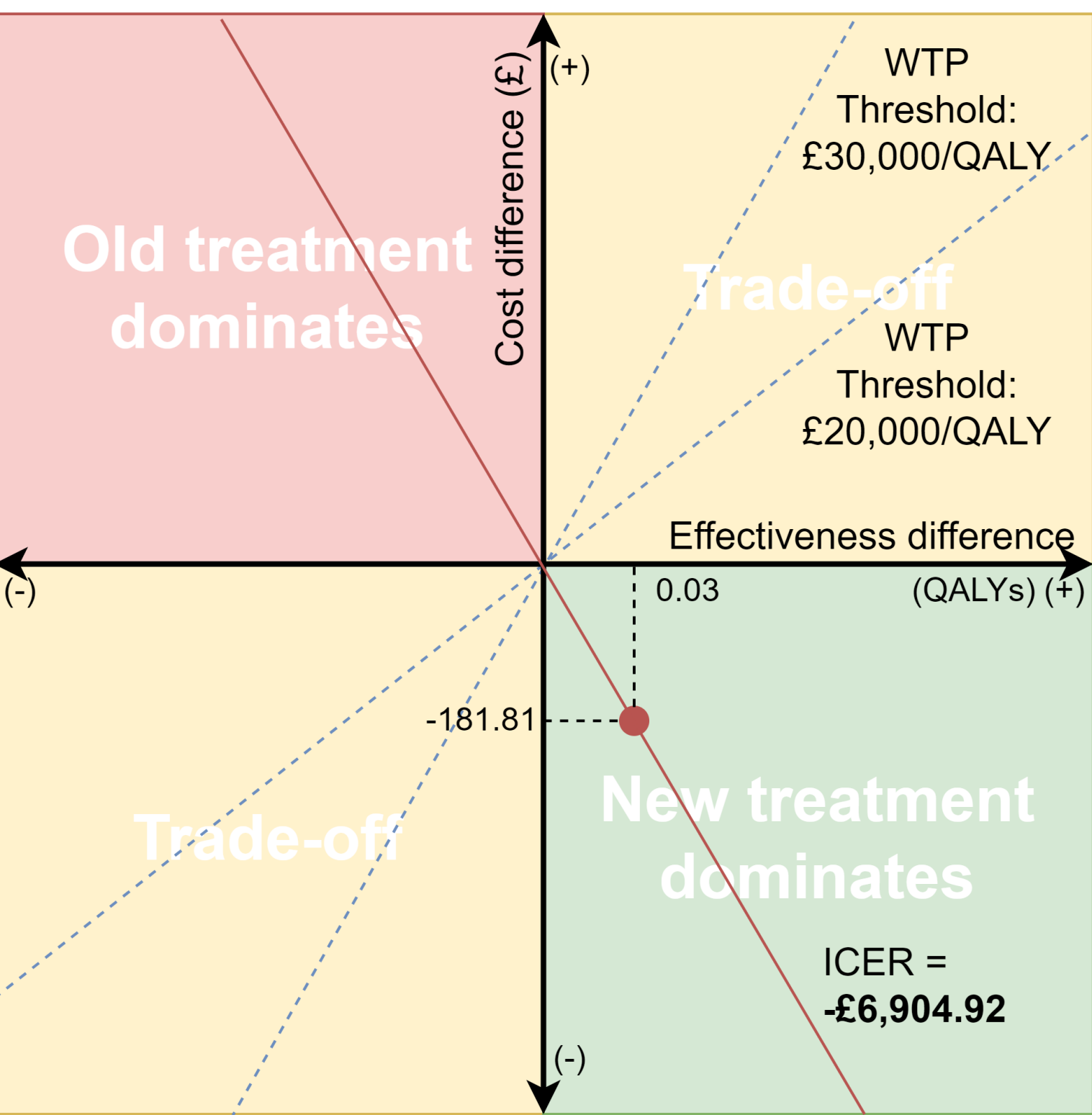

Figure 2: Cost-effectiveness plane of Ryeqo v. TXA.

		Ryeqo (Intervention)	TXA (Control)
Cost		£2110.58	£2292.38
QALY		0.77	0.74
ICER		-£6,904.92/QALY	
NMB	Lower (£20,000)	£12627.49	£13335.90
	Upper (£30,000)	£20052.92	£21024.63

Table 1: Base-case results

Supplementary Data and References

02   Aim and Objectives

To perform a cost-utility analysis comparing the novel treatment Ryeqo with the current treatment TXA, for premenopausal women (aged 20-40) with heavy menstrual bleeding and UF up to and including 3 cm in size from the UK NHS perspective.

03   Methods

Decision Tree Modelling

- A cost-utility analysis has been performed using decision tree modelling to compare Ryeqo (the intervention) and TXA (the comparator).
- Responsiveness is defined by menstrual blood loss (MBL) of less than 80 mL or more than 50% reduction from baseline in the sixth month after treatment initiation
- Myomectomy is assumed to be performed if either treatment is not responsive after 6 months of initial treatment.
- The time horizon of this model is one year.
- Probabilities and utilities were generated from published studies and grey literature (Suppl. material).
- Costs were gained from the NHS Tariff Workbook year 2023/2024 and the Unit Cost of Health and Social Care report (2022), adjusting inflation according to the 2023/2024 rate.
- Quality-adjusted life years (QALYs) are used as the primary measure of outcomes.
- Results are presented in terms of incremental cost-effectiveness ratio (ICER) and net monetary benefit (NMB).

Sensitivity Analysis

- Univariate sensitivity analysis was performed to assess the robustness of the model.
- Upper and lower limits were sourced from published literature. Where unavailable, a 30% variation from the base case was applied using expert judgment.
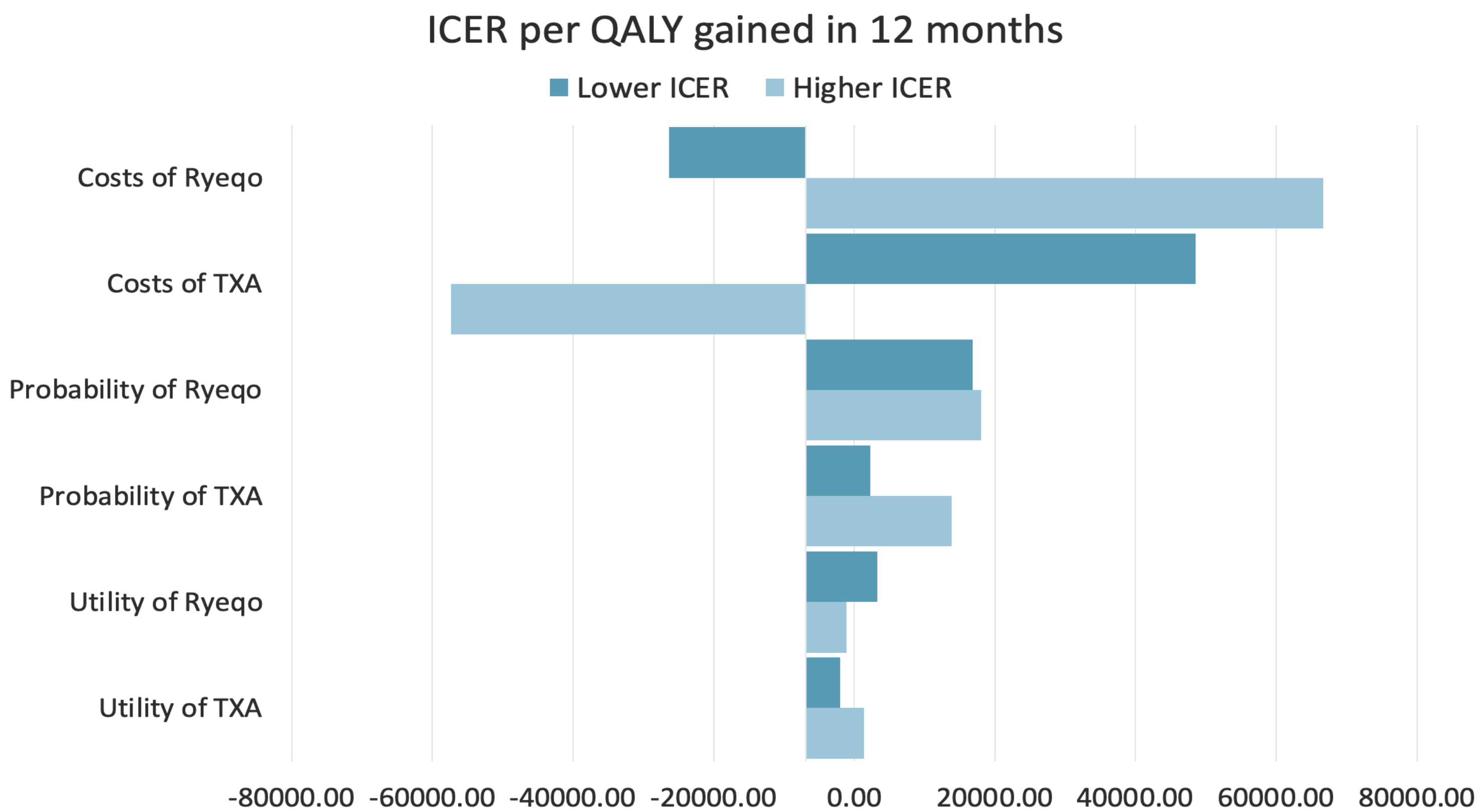

Figure 3: Tornado diagram showing univariate sensitivity analysis using various parameters

05   Conclusion

- Ryeqo could be considered as the first-line medical treatment for heavy menstrual bleeding caused by uterine fibroids less than 3 cm in size for women aged 20 to 40.
- More economic analysis regarding this novel drug need to be done, with different comparators and models, and take into consideration of its medium and/or long-term complications.