

A Cost-Effectiveness Analysis of Ustekinumab Against Vedolizumab Among Inflammatory Bowel Disease Patients with Extra-intestinal Manifestations in Egypt

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BACKGROUND:

Inflammatory Bowel Disease (IBD)—A Chronic Condition

- IBD represents a substantial burden and is associated with long-term complications
- It includes both:
  - Chronic gastrointestinal symptoms
  - Extra-intestinal manifestations (EIMs)



EIMs Add to the Overall Disease Burden in Egypt

- In Egypt, a significant proportion of IBD patients develop EIMs, which contributes to:
  - Higher management costs
  - Reduced quality of life (QoL)

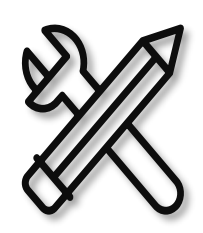


There are limited data comparing the effectiveness of ustekinumab and vedolizumab in managing IBD patients with EIMs in Egypt



OBJECTIVE:

- This cost-utility analysis, conducted from the perspective of the national payer in Egypt, aimed to compare the effectiveness of ustekinumab against vedolizumab in managing EIMs among biologic-experienced IBD patients



METHODS:

Model approach

- Using a decision tree, patients entered the model and were assigned to either ustekinumab or vedolizumab, followed by transition into mutually exclusive health states

Cost source

- Costs were retrieved from local Egyptian authorities (UPA, UHIA) and are presented in Egyptian Pounds (EGP)

Time horizon

- The analysis was conducted over a one-year time horizon

Clinical parameters

- Clinical outcomes for each treatment arm were obtained from a published systematic review and meta-analysis

Cost parameters

- The model included direct medical costs such as drug acquisition, follow-up costs, and additional resources required to manage worsened EIMs

Sensitivity analysis

- A one-way sensitivity analysis assessed model robustness

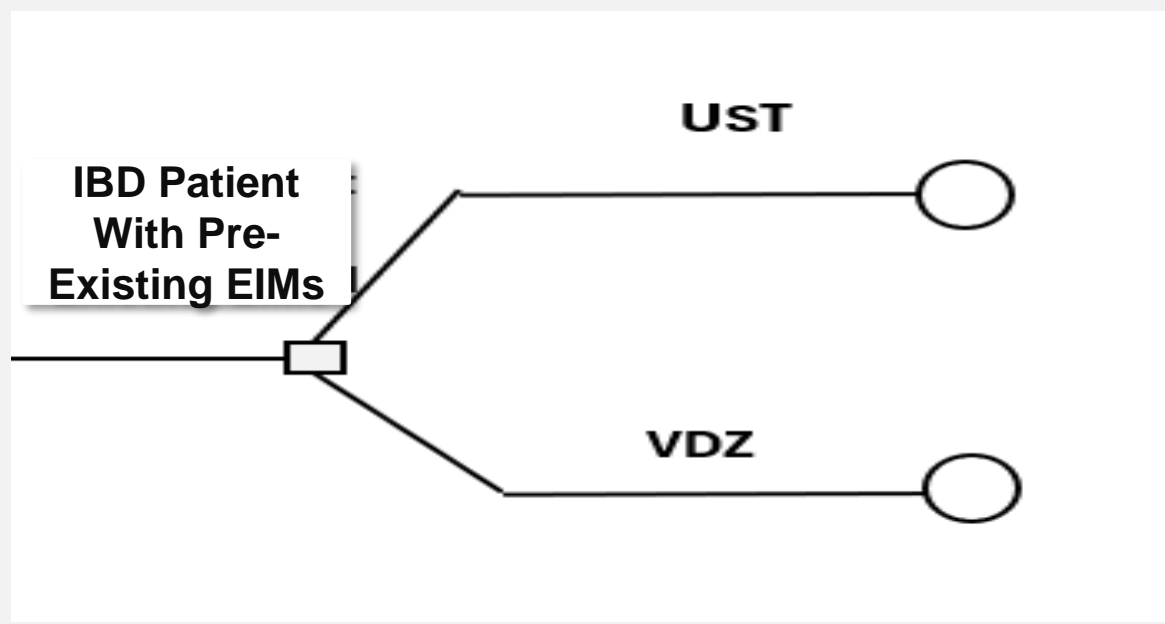


Figure 1. IBD patient with pre-existing EIMs entering the model

(UST: Ustekinumab, VDZ: Vedolizumab)

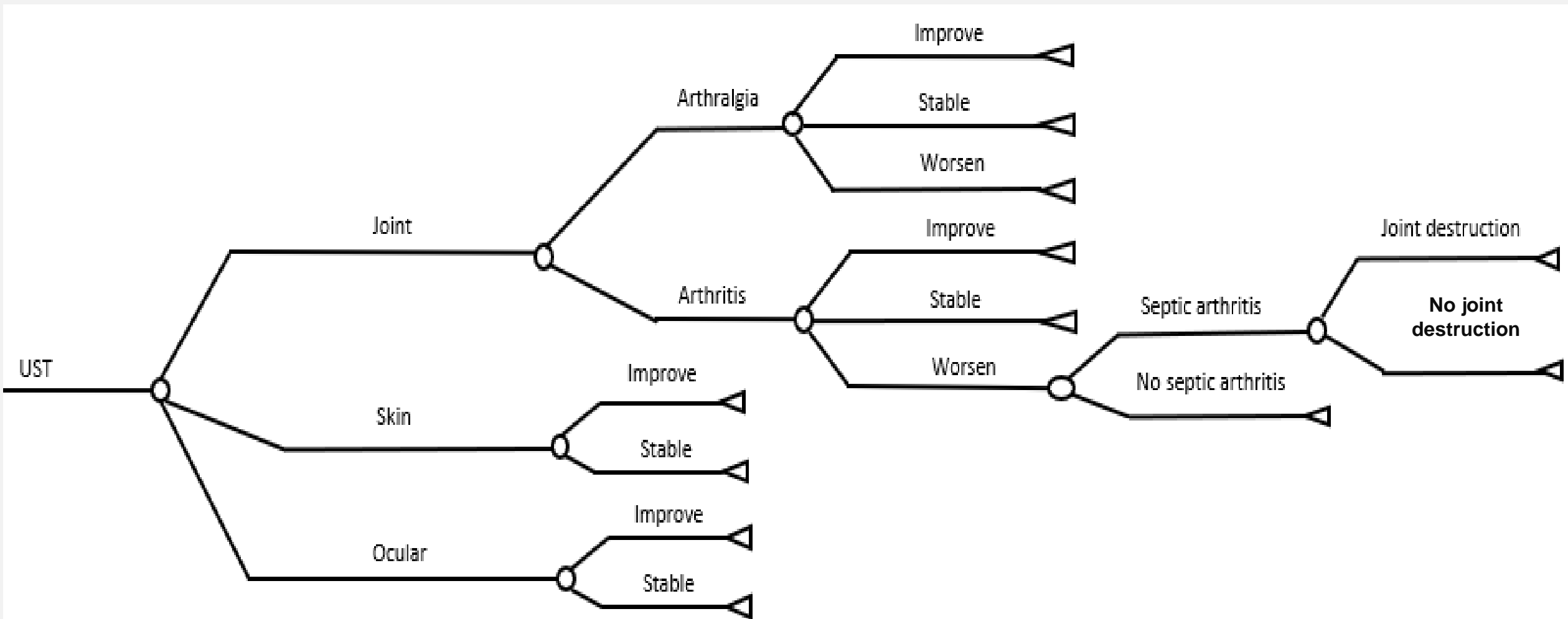


Figure 2. The observed outcomes with ustekinumab on EIMs

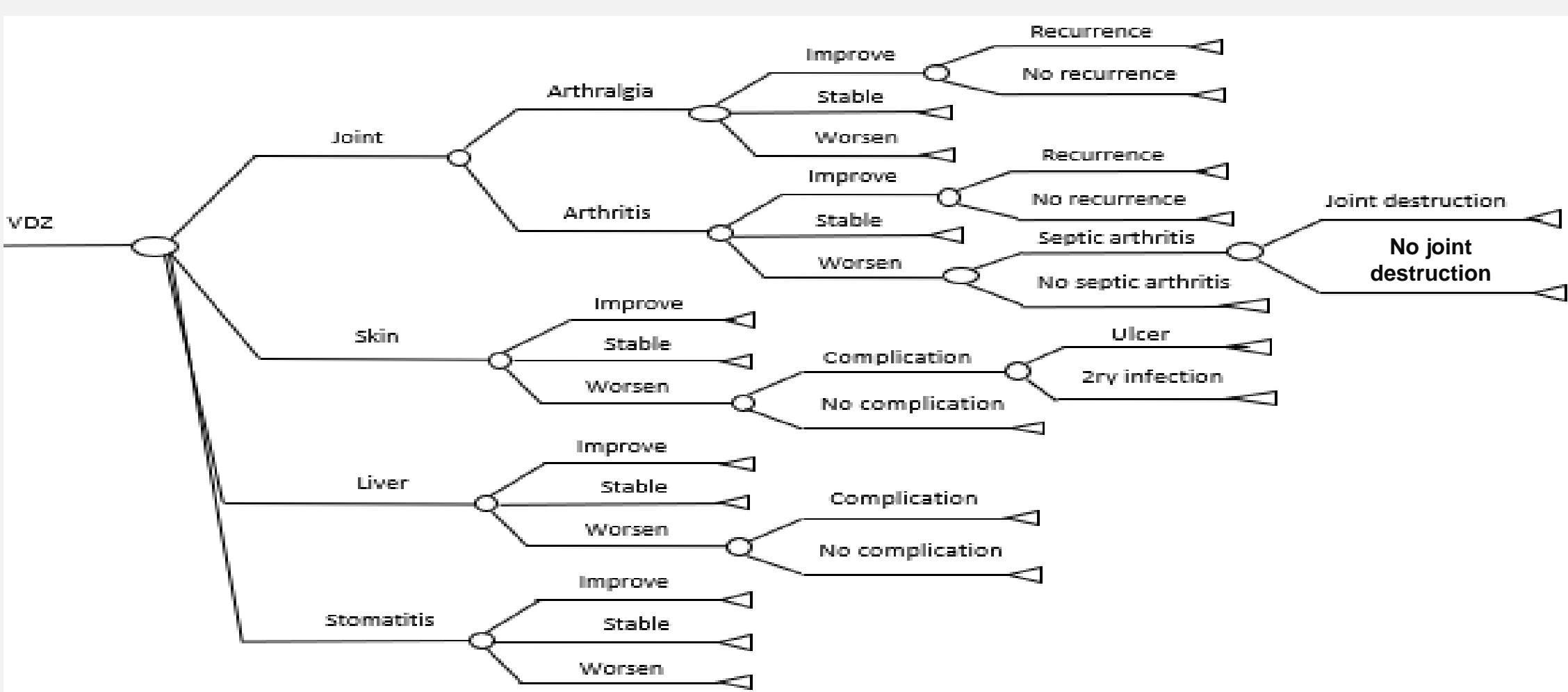
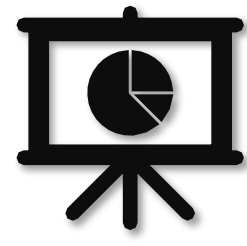


Figure 3. The observed outcomes with vedolizumab on EIMs



RESULTS:

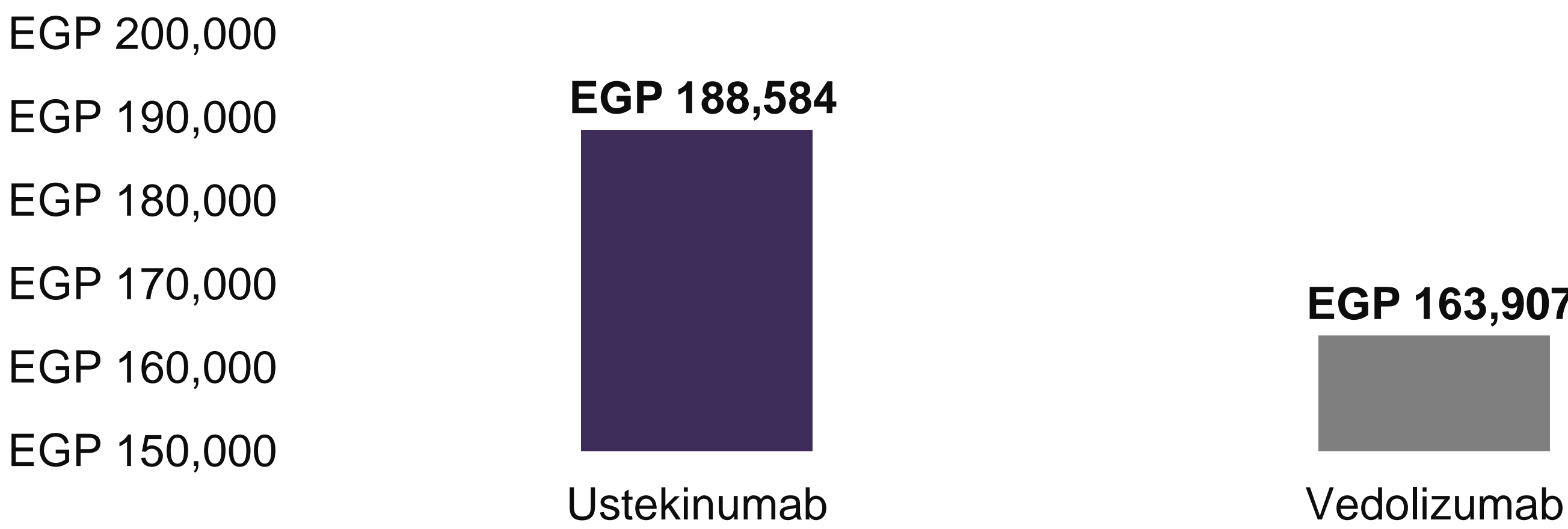


Figure 4. The Total Costs

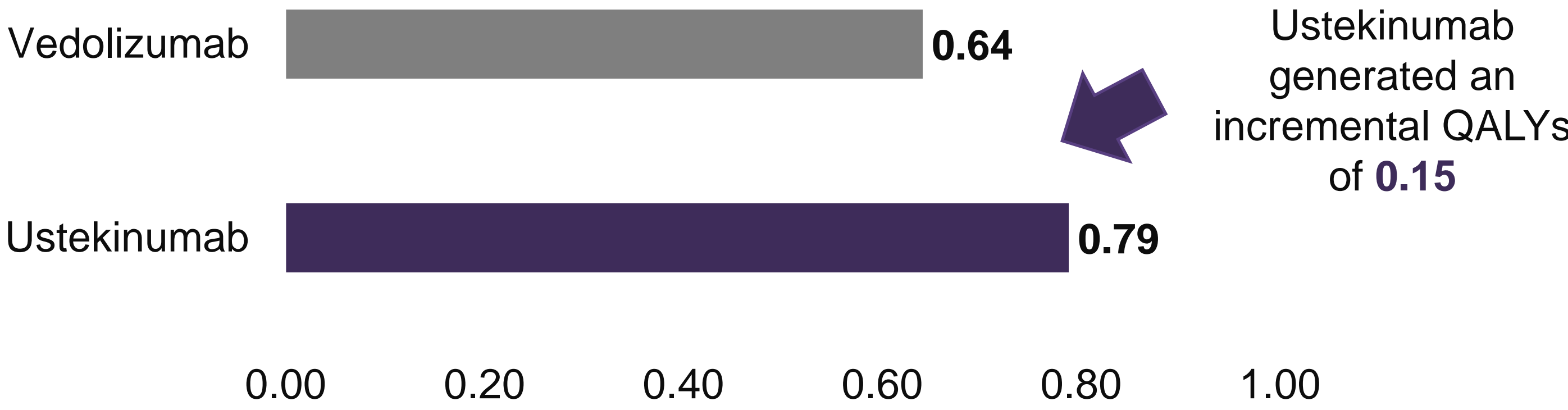


Figure 5. The Total Outcome in Terms of QALYs

- An incremental relative QALY gain (IRQG) of **0.19** corresponds to a cost-effectiveness threshold of two times the GDP per capita (EGP 177,366)

ICER = **EGP 167,927 per QALY gained** ← Ustekinumab offers better outcomes and remains cost-effective compared to vedolizumab

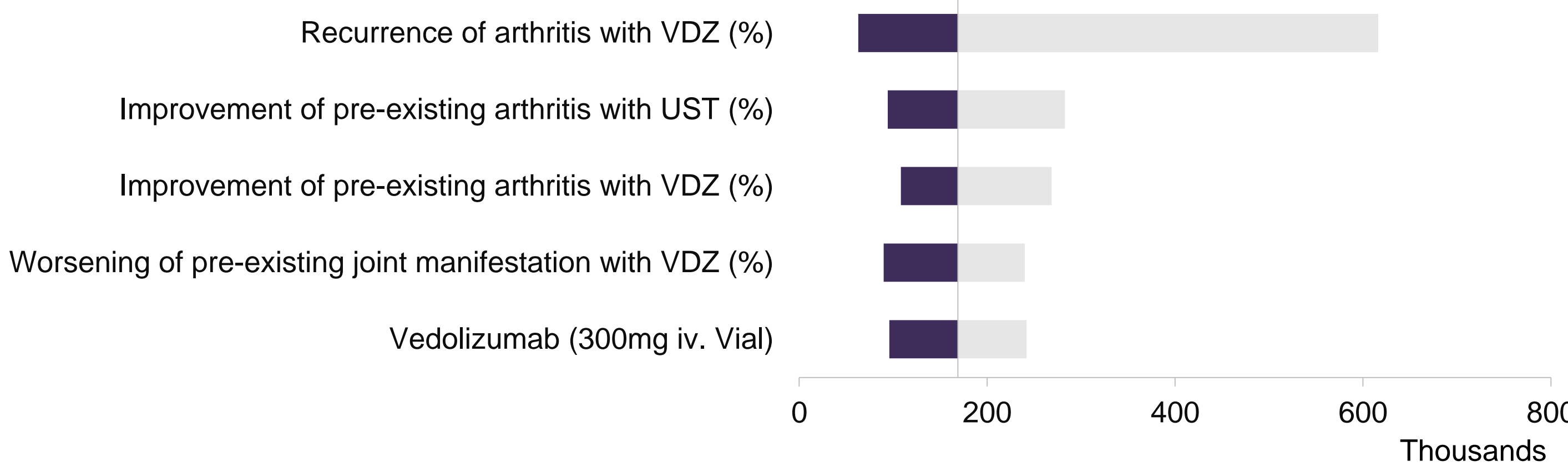


Figure 6. The Tornado Diagram  
(The dark color indicates higher values, while the light color indicates lower values)



Discussion:

Strengths:

- The efficacy data was extracted from a systematic review and meta-analysis
- All parameters and assumptions were validated by local Egyptian clinical experts in gastroenterology
- Sensitivity analyses were conducted to assess any uncertainty in the study

Limitations:

- Due to limited local data on the progression of worsened EIMs into complications, we relied on international clinical data, all of which were validated by the local Delphi panel



Conclusion:

- The analysis demonstrated that ustekinumab offers **superior clinical outcomes and QoL improvement** compared to vedolizumab for IBD patients with pre-existing EIMs, while being a **cost-effective option** within the Egyptian healthcare system

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