

Earlier Use of Guselkumab Is Projected to Yield Long-Term Sustained Remission in Patients With Moderate-to-Severe Ulcerative Colitis

Mariya Dimova¹, Mi Jun Keng², Dominik Naessens², Sumesh Kachroo³, Shashi Adsul³, Mario Gomez³, Elise Wu^{3,*}
¹Janssen-Cilag, Issy-les-Moulineaux, France; ²Janssen Pharmaceutica NV, Beerse, Belgium; ³Johnson & Johnson Innovative Medicine, Horsham, PA, USA

*Presenting author.

Background

- Ulcerative colitis (UC) is a chronic and progressive inflammatory bowel disease that is associated with reduced quality of life¹
- Treatment goals for patients with UC include inducing and maintaining clinical remission, achieving normal health-related quality of life, and avoiding or delaying the need for surgery²
- A variety of advanced treatment options for UC have been approved in recent years; however, the optimal treatment sequence is not well understood

In the phase 3 QUASAR study, 45% to 50% of patients with moderately to severely active UC who were treated with guselkumab, a dual-acting human immunoglobulin G1 interleukin-23p19 subunit inhibitor, achieved clinical remission at maintenance Week 44³

- Thus, guselkumab may have the potential to provide durable clinical remission

Objective

This analysis modeled outcomes for patients with moderately to severely active UC over a 5-year time horizon to determine the optimal treatment sequence with guselkumab (ie, first-, second-, or third-line therapy)

Key Takeaways

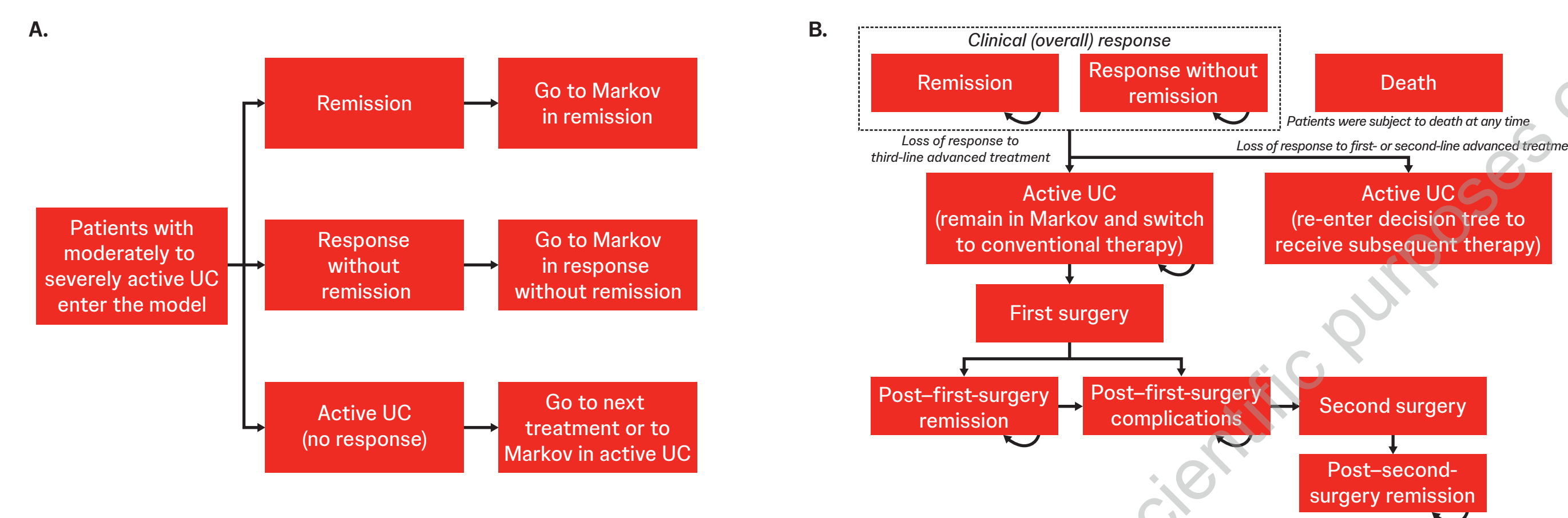
- For patients with moderately to severely active UC, model predictions suggest that using guselkumab as a first-line therapy is associated with a greater proportion of time spent in remission or response over a 5-year time horizon versus when guselkumab is used as a second- or third-line therapy
- Reduced time in active UC and greater time in remission may lead to lower health care resource utilization and improved quality of life^{9,10}

Methods

Model Structure

- A hybrid decision-analytical disease model was developed to project rates of clinical remission, response, and active UC (no response) for adult patients (≥18 years of age) with moderately to severely active UC
- In the induction phase (Figure 1A), patients were first distributed into health states representing remission, response without remission, and active UC based on the rates of clinical remission and response at induction estimated from a network meta-analysis of phase 2 and 3 studies (data on file)
- In the maintenance phase (Figure 1B), patients continued to receive maintenance treatment if they remained in response. Over time, patients lost response, and the rate of response loss was calculated based on the proportion of patients who achieved induction response and subsequently retained clinical response and/or remission at the end of the maintenance phase⁴⁻⁸
- Patients who failed to respond or lost response could receive 2 additional lines of therapy. Patients who failed to respond after third-line therapy were switched to a final line of conventional therapy where they could also receive surgery

Figure 1. Model Schematic Including a (A) Decision Tree for the Induction Therapy Phase and (B) State-Transition (Markov) Model for the Maintenance Therapy Phase



Age- and sex-adjusted mortality rates from US population life table were applied in the model. UC=ulcerative colitis.

Clinical Outcomes by Guselkumab Treatment Sequence

- Three treatment sequences were assessed with guselkumab placed in first-, second-, and third-line positions, respectively; treatment basket compositions that were informed by 2024 market-share data from the MarketScan database were used for the other 2 lines of therapy (Table 1)
- First-line guselkumab: guselkumab → Basket line 2 → Basket line 3
- Second-line guselkumab: Basket line 1 → guselkumab → Basket line 3
- Third-line guselkumab: Basket line 1 → Basket line 2 → guselkumab
- The predicted average proportion of time spent in remission, response, active UC, and UC-related surgery over 1, 3, and 5 years was assessed by the position of guselkumab in the treatment sequence (ie, first-, second-, or third-line therapy)

Table 1. Treatment Basket Composition

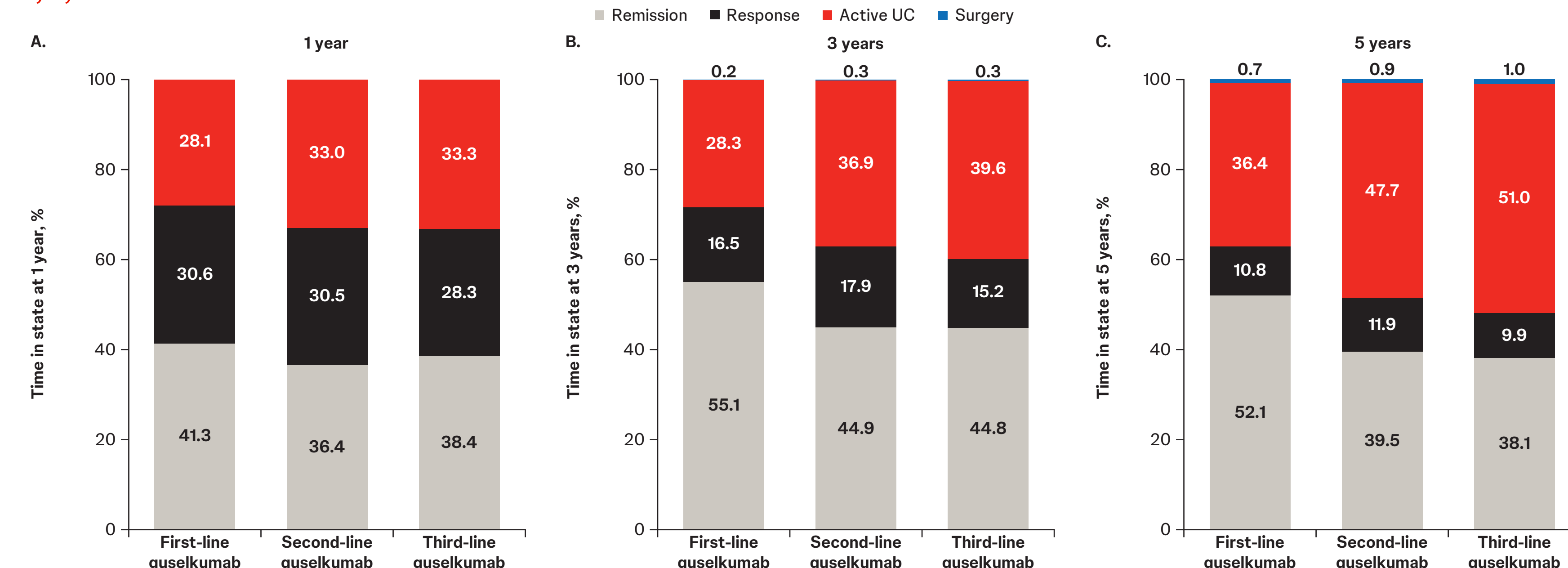
Treatment, %	Basket line 1	Basket line 2	Basket line 3
Adalimumab	25.0	23.3	6.3
Infliximab	17.1	22.3	15.7
Vedolizumab	36.9	10.1	9.4
Ustekinumab	13.8	16.1	25.0
Upadacitinib	7.2	28.3	43.7

Treatments with <5% of market share were excluded.

Results

Over a 5-year period, the predicted proportion of time patients spent in remission and/or response was consistently higher for patients treated with guselkumab as a first-line therapy compared with those receiving it in later lines (Figure 2)

Figure 2. Average Proportion of Time Patients Spent in Remission, Response Without Remission, Active UC, or Surgery Over 1, 3, and 5 Years



Note, due to rounding, values in each column may not total 100.0%. UC=ulcerative colitis.

- In the first year, patients who received first-line guselkumab spent 71.9% of their time in remission (41.3%) and response (30.6%) versus 66.9% (remission: 36.4%; response: 30.5%) for those treated with guselkumab in the second-line and 66.7% (remission: 38.4%; response: 28.3%) for those treated with guselkumab in the third-line
- The model predicts that patients who are treated with first-line guselkumab spend an average of 52.1% of their time in remission over 5 years in contrast to 39.5% and 38.1% for those who were treated with guselkumab in the second- or third-line, respectively