Cost per Responder Analysis of Guselkumab Versus Adalimumab Using Efficacy Results From a Head-to-Head Clinical Trial in Patients With Moderate to Severe Plaque Psoriasis

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Background

- Biologic therapies are commonly used in the US to treat moderate to severe plaque psoriasis, a chronic, relapsing inflammatory immune-mediated skin disease that has been shown to have a negative impact on patients' productivity and quality of life as well as increased medical care costs.[1-3]
- Guselkumab is a subcutaneously administered anti-interleukin (IL)-23 monoclonal antibody that is approved in the United States (US) for the treatment of moderate to severe plaque psoriasis and has been shown in 2 head-to-head phase 3 clinical trial to be superior to subcutaneously administered adalimumab, an anti-TNF alpha treatment.
- Insurers are seeking comparative effectiveness and cost data for these patients to inform formulary and benefit design decisions.

Objectives

- To estimate the cost per responder in the US for guselkumab relative to adalimumab in the first year of treatment based on efficacy results from a head to head clinical trial, VOYAGE 1[4]

Methods

- The calculation used to estimate the cost per responder was:

$$\text{Cost per responder} = \frac{\text{(Per unit drug costs) x (\# of doses per 52 weeks)}}{\text{Percent of patients with a response at 48 weeks (VOYAGE 1)}}$$

- Dosing was based on the FDA label in the first year, and number of doses was based on a full 52-week year for both products as shown in Table 1:

Table 1. Dosing and Pricing Inputs for Guselkumab and Adalimumab

	Cost Comparison Methodology[1,2]		
Biologic	**Dosing**	**Pricing[1]**	**Number of Doses 52 Weeks**
Guselkumab	100 mg administered by subcutaneous injection at Week 0, Week 4 and every 8 weeks thereafter	WAC per 100 mg: $9,684.00	8 (100 mg)
Adalimumab	80 mg initial dose (2 x 40 mg), followed by 40 mg every other week starting one week after initial dose	WAC per 40 mg: $2,220.62	28 (40 mg)

[1]The Wholesale Acquisition Cost (WAC) is a published list price. WAC does not contain any discounts, price concessions or charge backs extended to wholesalers or other end users. WAC is not intended to represent an actual sales price to customers. Wholesalers and distributors determine the actual sales price to end-user customers.

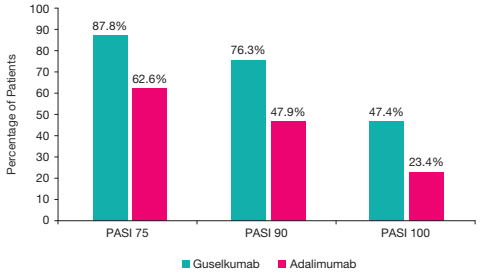
[2]Wholesale Acquisition Cost (WAC) as of August 2017.

- Efficacy (or response) was based on the percentage of patients reaching at least a 75% improvement in the Psoriasis Area and Severity Index (PASI75) or at least a 90% improvement in PASI (PASI 90) or 100% improvement in PASI (PASI 100) response at 48 weeks in the VOYAGE 1 head-to-head trial for guselkumab and adalimumab.
- The 48-week efficacy results were extrapolated to 52 weeks (assumed unchanged) for the first-year cost-per-responder calculation.

Results

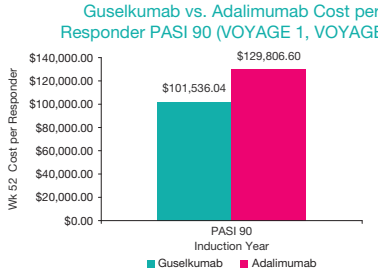
- The first-year costs were $77,472 (8 x $9,684.00) for guselkumab and $62,177 (28 x $2,220.62) for adalimumab.
- Figure 1 shows the percentage of patients in the VOYAGE 1 trial reaching a PASI 90 response at 48 weeks.

Figure 1. Percent of Patients Reaching Each PASI Response at 48 Weeks



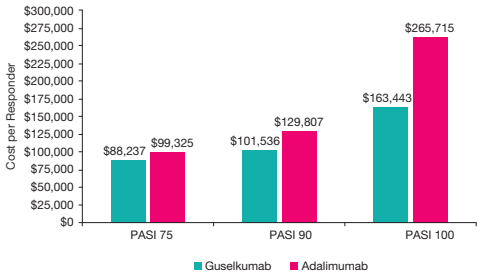
- Figure 2 shows the cost per responder estimates for Guselkumab and Adalimumab for the VOYAGE 1 primary endpoint, a response of PASI 90.

Figure 2. Cost per Responder for PASI 90 Responders Induction Year



- Figure 3 shows the cost per responder estimates for the three different PASI response rates, PASI 75, PASI 90 and PASI 100. For all three response rates, the cost per responder was lower for guselkumab than for adalimumab.

Figure 3. Induction Year Cost per Responder for All Three PASI Response Levels



Conclusions

- This cost per responder analysis from the VOYAGE 1 trial demonstrates that guselkumab is a more cost-effective treatment with a lower cost per responder than adalimumab for achieving a PASI 90, PASI 75, and a PASI 100 response in the first year of treatment among patients with moderate to severe plaque psoriasis.

References

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