Cost- effectiveness analysis of faricimab vs other treatment schemes in Peru

Authors: Figallo M, Delgado M, Ubaldo E. APOYO Consultoría. Lima, Peru | Study funded by Roche.

ACCEPTANCE CODE: EE488
POSTER SESSION 5

INTRODUCTION

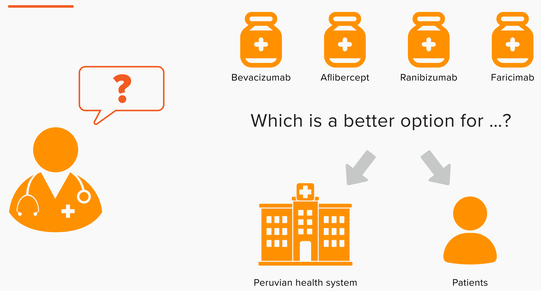
Peru use three treatments against DME and AMD: bevacizumab, aflibercept, and ranibizumab. In the Peruvian public health system, bevacizumab is used as the primary drug, and in case of unclear results, aflibercept is employed. Administered intravitreally, they require periodic injections: bevacizumab every 4 weeks, aflibercept every 4 weeks for the first 3 months and then bi-monthly and ranibizumab every 4 weeks for the initial 3 months, according to patient's evolution.

Faricimab has come up as an alternative treatment method for the AMD and DME. It requires only to be administered every 4 weeks for the first 4 months, and it potentially extends to 16 weeks.

Furthermore, studies comparing faricimab to alternatives like TENAYA and LUCERNE or YOSEMITE and RHINE support its efficacy, presenting it as a potential therapeutic option within the Peruvian healthcare system for AMD and DME. This is explained because faricimab differs from other drugs by inhibiting the activity of vascular endothelial growth factor-A (VEGF-A) as well as by neutralizing angiopoitin-2 (Ang-2). Other drugs only attack the activity of vascular endothelial growth factor although the angiopoitin-2 is responsible for vascular instability.

OBJECTIVE

Perform a cost-effectiveness analysis of faricimab (Vabysmo®) vs other treatment schemes (bevacizumab, ranibizumab and aflibercept) for patients with DME and AMD in the Peruvian public sector.



COST-EFFECTIVENESS METHOD

Comparative analysis of the costs and effectiveness faricimab against the other three treatment schemes.
We addressed it through three stages.

1. **Costs**
   Monetary quantification of direct costs (drugs' cost, cost of procedure, and cost of medical appointments) and indirect cost (cost of transport and cost of waiting) for DME and AMD patients in EsSalud. **Peruvian databases, studies and interviews** with ophthalmologist are used as sources to estimate costs.
2. **Effectiveness**
   Estimation through an **econometric model is based on meta-analysis of 80 studies.** Gathered variables are used to estimate the **marginal effectiveness of different drugs** (faricimab, aflibercept, and ranibizumab) compared to bevacizumab. **Control variables** include visual acuity baseline, age, and study type to enhance result accuracy.
3. **Cost-Effectiveness ratio**
   Estimation of cost-effectiveness ratio (ICER) for each treatment scheme for DME and AMD.

RESULTS

Costs
Faricimab is the least expensive treatment scheme because its application often occurs every 16 weeks (the longest period across the alternatives).

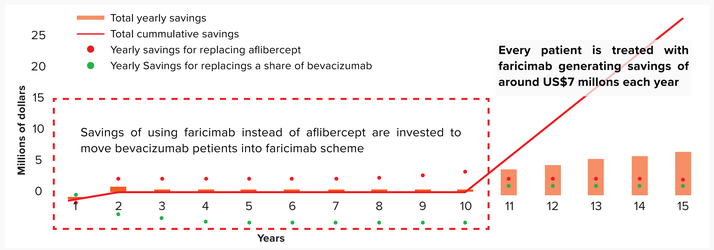
Savings of the different treatment schemes in comparison to bevacizumab (US$)

Treatment scheme (per year)	Savings			
	Bevacizumab	Faricimab	Aflibercept	Ranibizumab
#of doses*	13.0	3.2	6.1	13
Drug cost	61	2,328	3,597	8,472
Other direct costs	3,467	919	1,664	3,467
Indirect costs	125	34	58	125
Savings compared to bevacizumab(%)	-	10%	-46%	-230%

Note: Average between loading dosis and recurrent dosis considering a treatment period of 14 years based on the Peruvian data

To minimize budget impact due to extra loading doses, transition into faricimab scheme could be finance through the gains of replacing aflibercept patients, which are evident since the second year.

Overall savings of transitioning into faricimab scheme (millions of US$)



Effectiveness

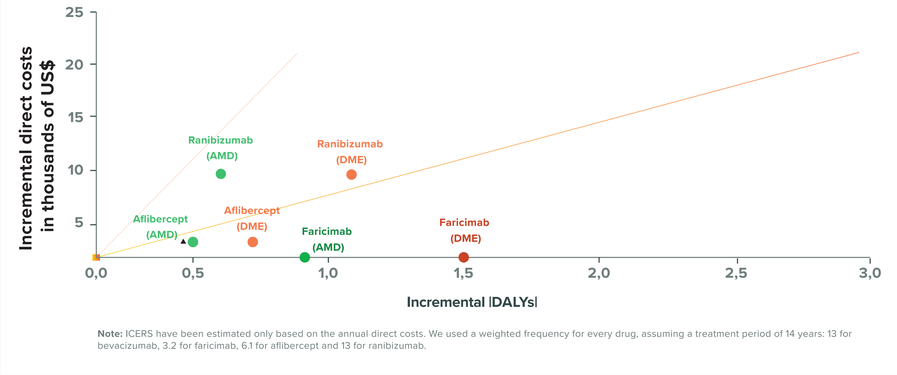
$$pVA_i = \alpha + \beta_1 Faricimab + \beta_2 Aflibercpt + \beta_3 Ranibizumab + \beta_4\, control\ variables + \varepsilon$$

We estimate an extra 4.6% in the improvement of VA (% of ETDRS letters gained) with 90% of significance in the case of faricimab, alingning with the literatura were faricimab is at leas as effective tan the other alternatives.

Costs-Effectiveness ratio
Despite the foregoing, **even narrowing down the analysis only to the first year**, in which faricimab requires extra loading doses, **faricimab attests to be cost saving against aflibercept and cost-effective against bevacizumab.**

As a result, faricimab stands out as the most cost-saving and cost-effective treatment scheme.

ICER's of the treatment schemes for AMD and DME in EsSalud (Incremental direct costs in thousands of US$ and |DALYs|)



Note: ICERS have been estimated only based on the annual direct costs. We used a weighted frequency for every drug, assuming a treatment period of 14 years: 13 for bevacizumab, 3.2 for faricimab, 6.1 for aflibercept and 13 for ranibizumab.

CONCLUSIONS AND DISCUSSION

1. The modeling results suggest that faricimab offers a cost-saving advantage over alternatives such as bevacizumab and aflibercept. However, due to loading doses, these savings are noticeable only when comparing faricimab with aflibercept starting from the first year. Consequently, the savings resulting from transitioning patients from aflibercept to faricimab are enough to counterbalance the costs associated with switching from bevacizumab to faricimab. This leads to the accumulation of savings from the second year onwards, allowing for the transfer of all patients to faricimab, resulting in annual savings of up to US$7 million for payers. Moreover, the elimination of approximately 70% of costs indirectly covered by patients would be an added benefit.
2. According with interviews we conducted, in Peru, clinical practice has shown that it is difficult to administer more than three annual doses of bevacizumab. Faricimab offers a possible solution by providing greater spacing between doses and may require three doses from the second year onwards, ensuring better clinical outcomes for patients.
3. Another pending discussion is about early diagnosis for these pathologies, which will require investment in advanced imaging equipment.

REFERENCES

Bolaños R, Calderón M. Introducción al meta-análisis tradicional. Revista de Gastroenterología del Perú. 2014; 34(1): 45-51.

Brown GC, Brown MM, Sharma S. Value-based medicine: Evidence-based medicine and beyond. Ocular Immunology and Inflammation. 2003; 11(3):157-170. doi: 10.1076/ocii.11.3.157.17355.

Eter N, Singh RP, Abreu F, et al. YOSEMITE and RHINE: Phase 3 Randomized Clinical Trials of Faricimab for Diabetic Macular Edema: Study Design and Rationale. Ophthalmol Sci. 2021;2(1):100111. doi:10.1016/j.xops.2021.100111.