

BIOLOGICAL DRUGS FOR THE TREATMENT OF MODERATE AND SEVERE PLAQUE PSORIASIS: A COST ANALYSIS AND AN APPLICATION OF A CORRELATION ANALYSIS TO INVESTIGATE COST/EFFECTIVENESS



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Background

- The introduction of biological drugs has led to a new era for the treatment of psoriasis.
- The recent arrival of biosimilars has guaranteed effectiveness at a more sustainable cost.

Aim and objectives

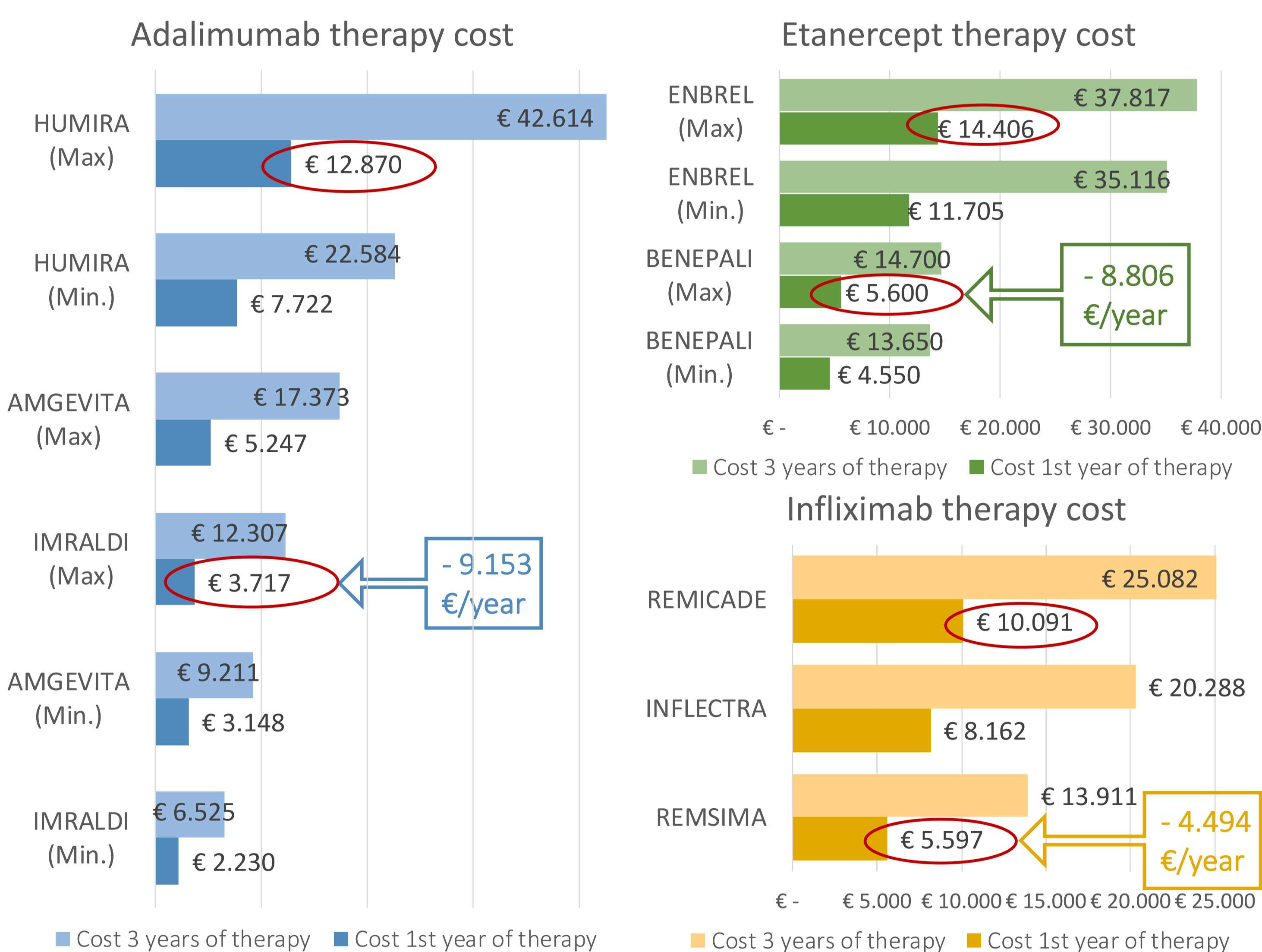
We aimed to compare long-term therapy cost and cost-effectiveness of biological systemic therapies for the treatment of patients with moderate-to-severe plaque psoriasis.

Material and methods

- Costs were extrapolated from our internal hospital database; we reported the purchase price, including any discount.
- Efficacy data, such as PASI index over 12 to 16 weeks, were obtained from a recent meta-analysis by Sawyer et al.
- We calculated the long-term costs by considering the monthly expenditures plus the costs related to the induction phase.
- Cost-effectiveness analysis was performed by a correlation analysis between the effectiveness and cost of therapy.
- Correlation index (R) was calculated for each drug at different PASIs

Result I

Cost analysis of the first year and the first three years of therapy showed how the introduction of biosimilar drugs has greatly lowered the global expenditure.

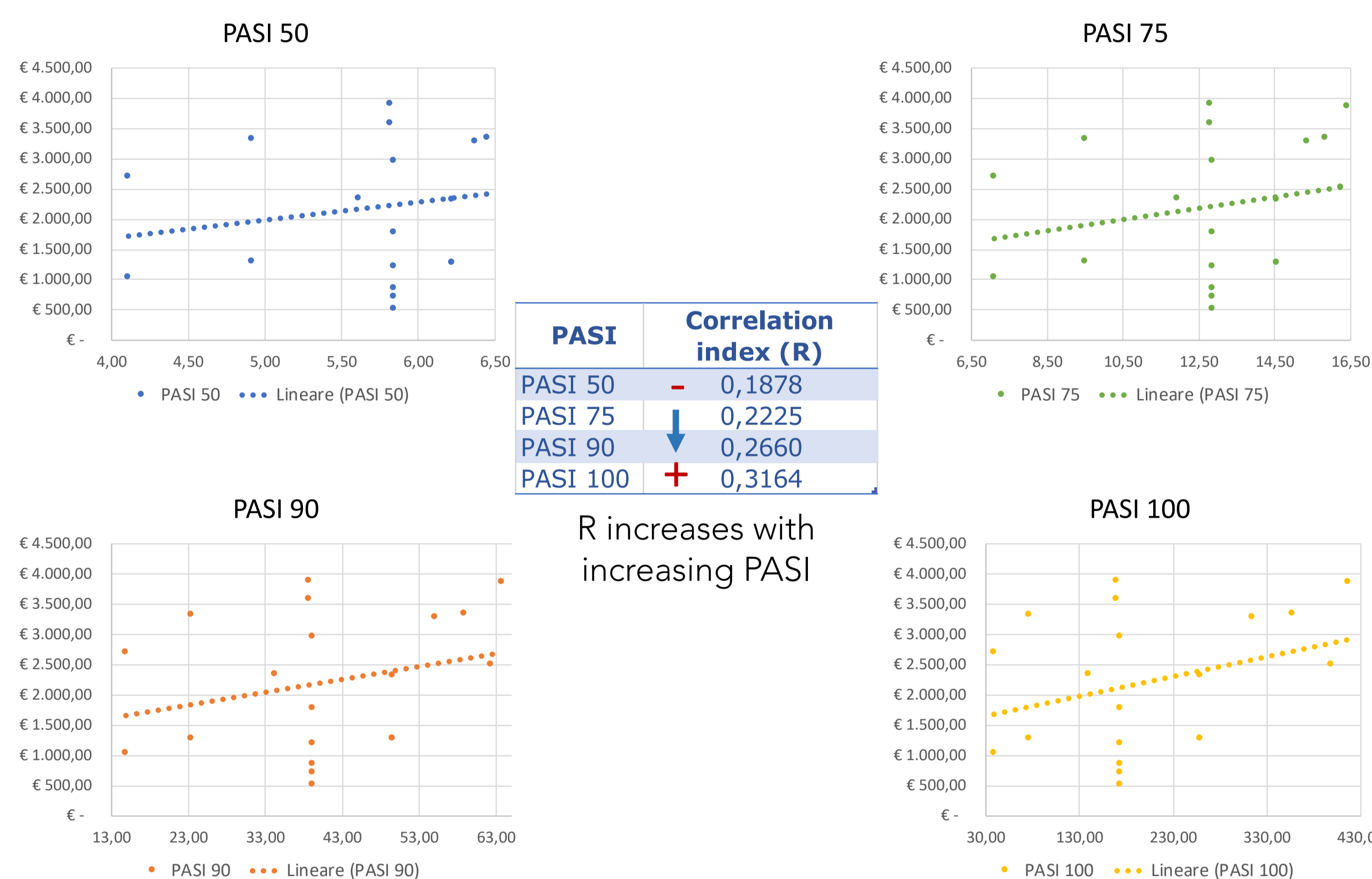


In terms of efficacy alone, greater therapeutic results were observed for the most recently approved molecules, especially considering PASI90/100. The cost/PASI ratio of these newer therapies becomes convenient only for PASI 90 and 100.

NOME	PASI 50	PASI 75	PASI 90	PASI 100
STELARA®	€ 4.758	€ 2.464	€ 1.003	€ 310
HUMIRA®2	€ 2.848	€ 1.649	€ 788	€ 304
BENEPAL® 100mg/Week	€ 1.850	€ 958	€ 390	€ 121
CIMZIA® 200mg	€ 3.486	€ 1.585	€ 524	€ 120
BENEPAL® 50mg/Week	€ 1.107	€ 641	€ 306	€ 118
IMRALDI®2	€ 2.669	€ 1.214	€ 401	€ 92
AMGEVITA®2	€ 2.204	€ 999	€ 328	€ 75
COSENTYX®	€ 1.808	€ 848	€ 295	€ 73
INFLECTRA®	€ 2.234	€ 926	€ 258	€ 45
KYNTHHEUM®	€ 1.322	€ 600	€ 197	€ 45
REMSIMA®	€ 2.252	€ 916	€ 247	€ 41
AMGEVITA®	€ 2.560	€ 1.020	€ 263	€ 40
ENBREL® 100mg/Week	€ 1.622	€ 692	€ 203	€ 39
HUMIRA®	€ 898	€ 407	€ 134	€ 30
IMRALDI®	€ 1.674	€ 671	€ 175	€ 27
TALTZ®	€ 636	€ 289	€ 95	€ 22
ENBREL® 50mg/Week	€ 894	€ 381	€ 112	€ 22
CIMZIA® 400mg	€ 894	€ 381	€ 112	€ 22
TREMFYA®	€ 539	€ 244	€ 80	€ 18
REMICADE®	€ 382	€ 173	€ 57	€ 13

© The table shows the data relative to the Cost/PASI ratio.

Result II



Observing the correlation between PASI score and cost, there seems to be a positive correlation, albeit weak, between these two variables, indicating how the increase in cost is accompanied by an increase in therapeutic efficacy.

Conclusion

- The introduction of biosimilars has reduced the cost of some therapies, freeing up resources for more innovative and expensive treatments for relapsing or nonresponding patients.
- We observed a certain linearity between cost and efficacy; a higher cost is correlated with greater effectiveness, especially for PASI90/100.
- There is still a lack of longer duration studies (over 16 weeks) able to compare more consistently long-term therapies with drugs of different classes.

References

<https://doi.org/10.1371/journal.pone.0220868>
Sawyer LM, Malottki K, Sabry-Grant C, Yasmeeen N, Wright E, et al. (2019) Assessing the relative efficacy of interleukin-17 and interleukin-23 targeted treatments for moderate-to-severe plaque psoriasis: A systematic review and network meta-analysis of PASI response. PLOS ONE 14(8): e0220868. <https://doi.org/10.1371/journal.pone.0220868>