Cost-effectiveness of biologic therapies for psoriasis in a large hospital in Ecuador

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Introduction

Psoriasis is a complex, chronic, multifactorial, inflammatory disease with a prevalence of 2% worldwide, see Figure 1 (1). In Ecuador, psoriasis affects 0.59% of the population and some 650 new patients are diagnosed every year according to the Ecuadorian National Foundation of Psoriasis (2). Psoriasis has been associated with the risk of developing cardiovascular disease, metabolic syndrome, liver disease, diabetes and psoriatic arthritis. The daily impact of psoriasis is important, 60% of patients declare that the disease affects their everyday life, 65% have reported social discrimination. Associated depression is estimated to be up to 30% (3). Biological agents are important treatment options for psoriasis due to excellent short-term and long-term efficacy and favorable tolerability (4).

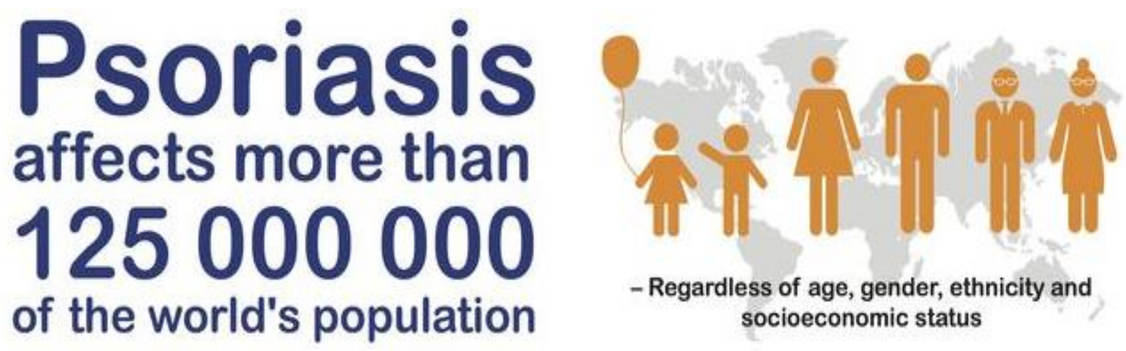

Figure 1. Prevalence of psoriasis worldwide
Source: World Health Organization, 2014

Objectives

The aim of this study was to assess the cost effectiveness of the main biological therapies used in the management of psoriasis in a large hospital in Ecuador.

Methods

The study used a 24-week efficacy evaluation model based on review of international and national references. The biological agents compared were etanercept (50 mg/subcutaneously, weekly), adalimumab (40 mg/ subcutaneously, every other week), and infliximab (3mg/kg intravenously every 8 weeks). Cost were based on Ecuadorian Nacional Reference (2014) and institutional costs. The effectiveness of each agent was assessed according to Psoriasis Area and Severity Index (PASI 75) and Global Disease Activity (PGA 0/1). A search for local efficacies PASI 75 was performed. Cost-effectiveness analysis was reported based on Incremental Cost Effectiveness Ratio (ICER). Sensitivity analysis was performed by Monte-Carlo simulations.

Results

The direct costs of psoriasis management of each biological agent were etanercept $ 9,622.91, adalimumab $ 7,092.92 and infliximab $ 11,958.45, as detailed in Table 1. The most cost-effective biologic therapy per patient based on PASI 75 was adalimumab (ICER: $ 12,001.56) and the less cost-effective therapy was infliximab (ICER: $ 778,513.33). Based on PGA 0/1, the most cost-effective biological agent was adalimumab (ICER: $ 12,665.93) and the less cost-effective agent was etanercept (ICER: $ 126,499.50), see Table 2.

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Table 1. Description of biological therapy direct costs

		Etanercept	Adalimumab	Infliximab
Direct costs	Test and ambulatory visits	213.83	223.52	238.74
	Administration drug visit	29.40	29.40	139.71
	Drug costs	9,379.68	6,840.00	11,580.00
Total		9,622.91	7,092.92	11,958.45

Costs in American Dollars

Table 2. Cost- effectiveness analysis

Initial analysis

Therapy	Cost	PASI 75	CE	Incremental cost	Incremental PASI 75 averted	ICER
Adalimumab	7,092.92	0.591	12,001.56	7,092.92	0.591	12,001.56
Etanercept	9,622.91	0.621	15,495.83	2,529.99	0.03	84,333.00
Infliximab	11,958.45	0.624	19,256.76	2,335.54	0.003	778,513.33

Second analysis

Therapy	Cost	PASI 75	CE	Incremental cost	Incremental PASI 75 averted	ICER
Adalimumab	7,092.92	0.591	12,001.56	7,092.92	0.591	12,001.56
Etanercept	9,622.91	0.621	15,495.83	2,529.99	0.03	84,333.00

Costs in American Dollars

Discussion

This work shows that, despite its lowest PASI 75 value and its cheapest price among the three biological agents investigated, adalimumab turned out to be the most cost-effective therapy in the management of psoriasis. Spanish and German studies presented similar results, adalimumab being the most cost-effective option in psoriasis patients with an ICER € 8,013 and € 25,378 per PASI 75, respectively (5,6). An economic study conducted in 2013 in Ecuador showed different results, the most cost-effective option to treat psoriasis was etanercept with costs of $ 39,585, followed by infliximab and adalimumab with costs of $ 49,055.6 and $ 66,240, respectively. The main difference with our study may be explained by the fact that it was developed in two years and that second direct costs further included concomitant medications and side effects management (2).

The present study had some limitations. First, the model presented was based on a simulation of ideal protocol under international recommendations in the management of psoriasis. Second, since the study development time was 24 weeks, so that no long-term results can be given. Third, the model did not include an analysis of complications and safety of the biological agents.

Conclusions

According to this 24-week analysis, adalimumab therapy is the best and most cost-effective choice for psoriasis management in Ecuador with an ICER of $12,001.56, hence reducing the budgetary impact of the hospital treatment of psoriatic patients.

Acknowledgements

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