

ECONOMIC EVALUATION OF NATALIZUMAB IN THE TREATMENT OF RELAPSING REMITTING MULTIPLE SCLEROSIS IN 4 EUROPEAN COUNTRIES

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Objectives

Multiple sclerosis (MS) is an inflammatory and neurodegenerative condition of the central nervous system with prevalence of 1 Million worldwide. The age at first manifestation is usually between 20 and 40 so that the disease may lead to permanent disability and early retirement even in young adults.

The objective of this pharmacoeconomic analysis was to provide an economic assessment of the treatment of relapsing-remitting MS with natalizumab versus interferones and copolymer 1 in 4 European countries (Austria, Czech Republic, Slovakia, Slovenia).

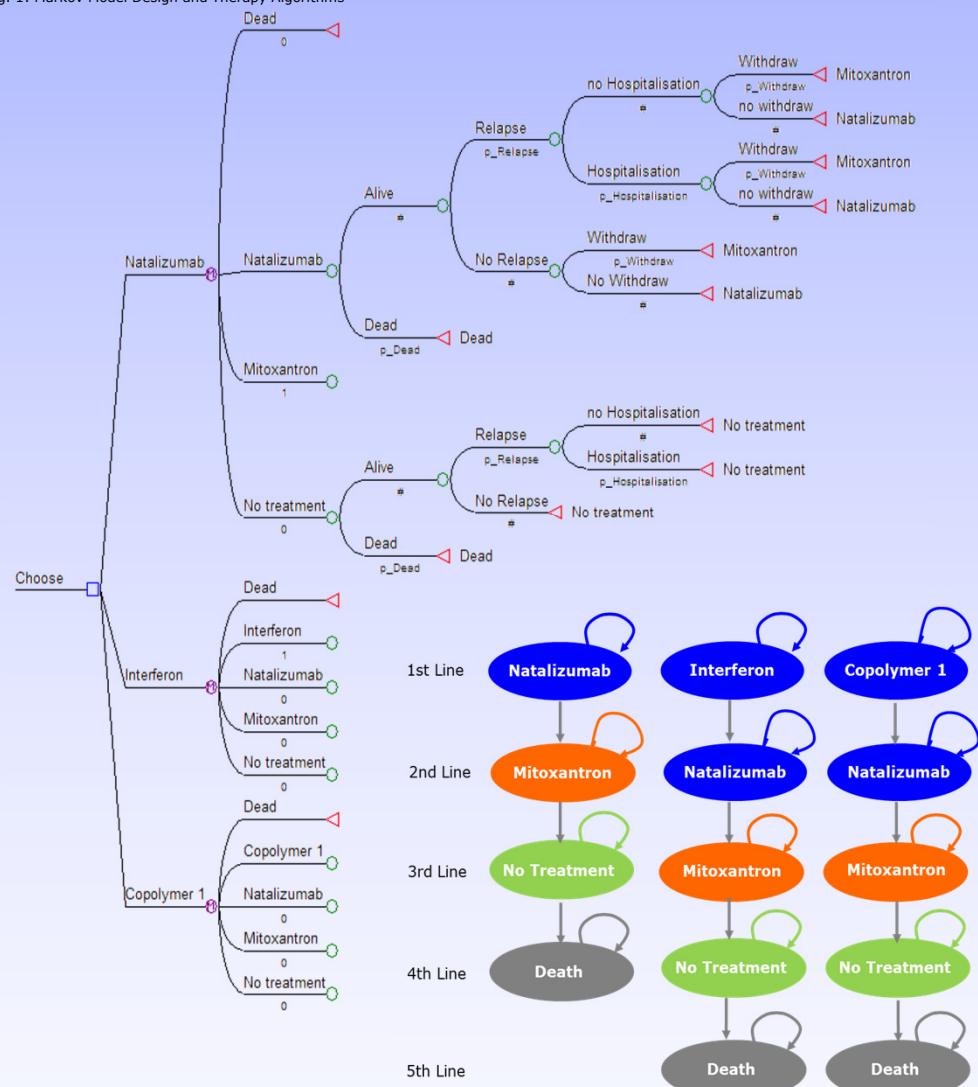
Methods

This retrospective pharmacoeconomic analysis was performed using a Markov model. Efficacy assessment was based on the outcome measure "relapse-free patients." The analysis period was 2 years. The analysis was performed from the perspective of the healthcare system for 4 European countries. Costs were captured for the year 2010. The therapy algorithm is based on current therapeutic recommendations of treatments in MS (Multiple Sclerosis Therapy Consensus Group). The resource use of Czech Republic, Slovakia and Slovenia was determined via country-specific research. Where country specific data could not be captured, Austrian data was adjusted via Purchasing Power Parities (PPP). The analysis was conducted according to national pharmacoeconomic guidelines where available.

The Markov model is based on clinical study data. As clinical data was not available head-to-head, this data was extracted from six clinical studies via indirect comparison.

The outcomes 'relapse-free-patient' was chosen to assess the effectiveness of MS treatment.

Fig. 1: Markov Model Design and Therapy Algorithms



Source: IPF own depiction

Resource Use and Cost

Main resource use is based on a survey among Austrian MS patients conducted in 2005. All direct medical costs, linked to particular therapy an relevant for the chosen health care system's perspective, are captured for all 4 countries. These are: Medication cost, consultations, hospital outpatient department, inpatient treatment due to relapses, and rehabilitations cost. Medication cost is calculated based on reimbursement price of each country.

Mortality data was derived from epidemiological data of Austrian Nationals Statistics and HTA. Assumptions apply for all comparators in equal measure.

Results

In the Czech Republic the average cost of the therapy algorithm Natalizumab amount to 33,835€ per patient within the time horizon of 2 years versus 22,896€ (Interferon) and 21,256€ (Copolymer). A patient successfully treated with Natalizumab accounts for 56,525€ compared to 70,190€ (Interferon) and for 87,555€ (Copolymer).

In Slovakia a relapse-free patient values 60,357€ (Natalizumab) versus 58,043€ (Interferon) and 84,207€ (Copolymer). A relapse-free patient in Slovenia values 59,108€ (Natalizumab) versus 66,202€ (Interferon) and 84,207€ (Copolymer). In Austria a relapse-free patient values € 58,423 (Natalizumab) versus 71,906€ (Interferon) and 89,591€ (Copolymer).

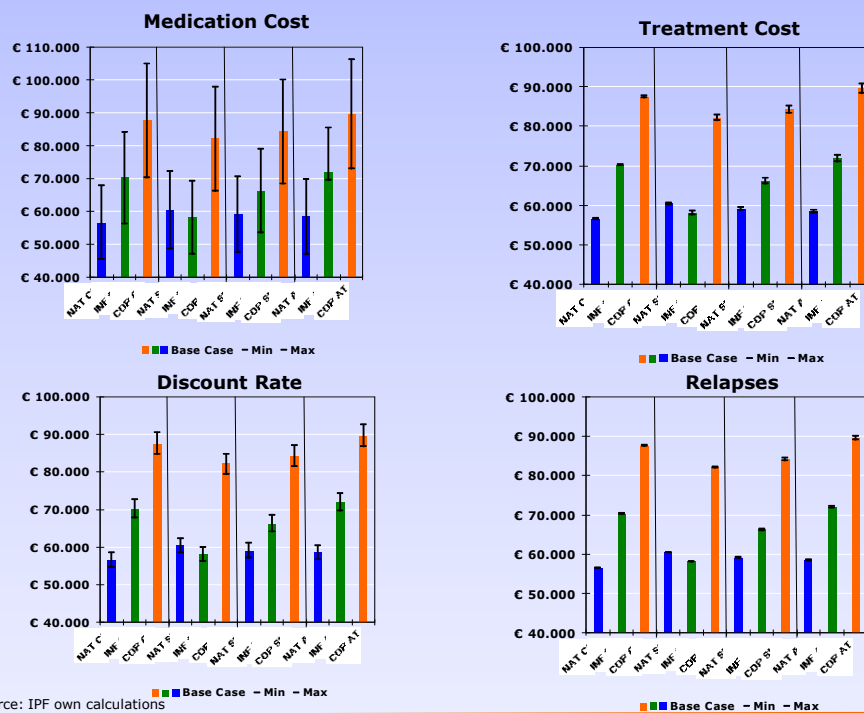
Tab. 1: Results

Strategy	Cost	Difference Cost	Effectiveness	Difference Effectiveness	Cost-Effectiveness	Cost per additional relapse-free patient
Czech Republic						
Natalizumab	33,835		59.86%		56,525	
Interferons	22,896	-10,939	32.62%	-27.24%	70,190	40,161
Copolymer 1	21,256	-12,579	24.28%	-35.58%	87,555	35,354
Slovakia						
Natalizumab	36,128		59.86%		60,357	
Interferons	18,934	-17,194	32.62%	-27.24%	58,043	63,128
Copolymer 1	19,921	-16,207	24.28%	-35.58%	82,057	45,550
Slovenia						
Natalizumab	35,381		59.86%		59,108	
Interferons	21,595	-13,786	32.62%	-27.24%	66,202	50,613
Copolymer 1	20,443	-14,938	24.28%	-35.58%	84,207	41,983
Austria						
Natalizumab	34,971		59.86%		58,423	
Interferons	23,455	-11,516	32.62%	-27.24%	71,906	42,278
Copolymer 1	21,750	-13,221	24.28%	-35.58%	89,591	37,157

Source: IPF own calculations

The sensitivity analysis shows the robustness of the model. The results are not sensitive, except the variation of medication cost.

Fig. 2: Sensitivity Analysis



Source: IPF own calculations

Conclusion

In Czech Republic, Slovenia, and Austria, treatment of MS with Natalizumab is more cost-effective than Interferon resp. Copolymer 1 therapy. In Slovakia treatment of MS with Natalizumab is more cost-effective than Copolymer 1 therapy. Switching to effective and more expensive alternatives does not account for higher health care costs.

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