

Cost-minimisation analysis of natalizumab biosimilar compared to reference natalizumab for multiple sclerosis

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Objective

To compare the cost of the biosimilar of natalizumab (intravenous infusion) versus to the reference natalizumab (intravenous infusion and subcutaneous administration) from the perspective of the Spanish National Health System (NHS).

Introduction

- Multiple Sclerosis (MS) is a disease that affects over 55,000 people in Spain.¹ The relapsing-remitting form of MS accounts for about 89.3% of the clinical manifestations of the disease.²
- Natalizumab biosimilar (NTZ-BS) is the first monoclonal antibody biosimilar available in the treatment of relapsing-remitting multiple sclerosis (RRMS) in Spain.³
- At the time of the analysis, the reference treatment (NTZ-RF) had two NHS-funded presentations: i) a pack of one vial of natalizumab 300 mg for IV infusion, and ii) a pack of two pre-filled syringes of natalizumab 150 mg.⁴ The biosimilar therapy was being evaluated for NHS funding.

Methods

Model Design

- A cost-analysis model was developed to estimate the cost of NTZ-BS and NTZ-RF along 2-year time horizon. An annual discount rate of 3% was applied.
- Based on the approved regimen, a total of 13 doses per year were accounted for NTZ-BS or NTZ-RF.
- To compare NTZ-BS versus NTZ-RF, the presentations IV and SC of NTZ-RF were considered. The probability of use was assumed to be 69.9% for NTZ-RF IV and 30.1% for NTZ-RF SC.⁵ A probability of use of 100% for NTZ-RF IV and 100% for NTZ-RF SC was considered in the sensitivity analysis (SA).

Methods

- The time spent by healthcare professionals (neurologist, pharmacist, and nurse) on tasks such as prescribing, dispensing, patient reception, administration, and observation for each dose is detailed in Table 1.

Table 1. Healthcare professional time

Healthcare Professionals Task	IV NTZ	SC NTZ
A. Prescription and dispensation		
Prescription and verification by neurologist	2 min	2 min
Dispensation by pharmacist	5 min	2.5 min
Patient reception by nursing	19 min	9.5 min
B. Administration and observation by nursing		
Perfusion or injection	60 min	7 min
Observation post perfusion or injection		
Doses 1 to 6	60 min	60 min
Doses 7 to 12	30 min	0 min
Consecutive doses	0 min	0 min

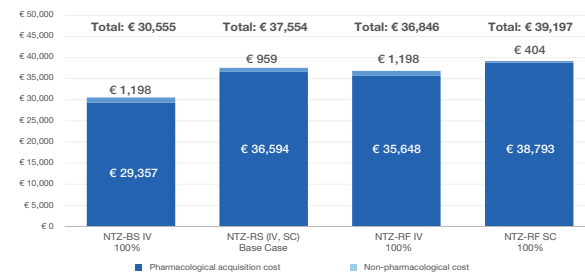
Costs

- The analysis was conducted from the NHS perspective, including drug acquisition costs, treatment administration costs (administration and immediate observation after infusion or injection), and healthcare costs associated with administration.
- Drug acquisition cost per administration for NTZ-RF were €1,391.32 (IV) and €1,514.09 (SC), based on the public reimbursed drug ex-factory prices. In case of NTZ-BS IV was assumed €1,145.80 considered a 30% less than IV NTZ-RF.
- National healthcare professional salaries (average of available regional government publications) were used to calculate the cost per hour (€39.22 for neurologist, €36.14 for pharmacist and €25.45 for nursing).
- The cost results were expressed in euros for the year 2023 (€, year 2023).

Results

- Total cost per patient resulted in €30,555 for IV NTZ-BS and €37,554 for NTZ-RF (IV and SC) along 2-years period (Figure 1). This result showed that NTZ-BS could save €6,998/patient (-19%) versus NTZ-RF (IV and SC).
- The SA results showed that NTZ-BS could save up to €6,291 (-17%) compared to IV NTZ-RF or €8,642 (-22%) compared to SC NTZ-RF (Figure 1).

Figure 1. Total cost per patient over 2-year time horizon*



* An annual discount rate of 3% was applied.

Conclusions

The introduction of NTZ-BS as an alternative to NTZ-RF would generate savings for the NHS in the treatment of RRMS.

References: 1. Prevalence of Multiple Sclerosis in Spain. <https://emdata.esclerosismultiple.com/atlas-de-la-erm/>. 2. Pérez AS, et al. Farm Hosp. 2023;47(4):155-60. <https://doi.org/10.1016/j.farma.2023.03.009>. 3. EMA. Tyruko® EPAR. <https://www.ema.europa.eu/en/medicines/human/EPAR/tyruko>. 4. BOTPlus database. <https://botplusweb.farmacueticos.com/>. 5. IQVIA. Panel EMH con datos de Abril 2023.

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