

Cost-analysis of subcutaneous versus intravenous administration for natalizumab in Multiple Sclerosis in Spain

OBJECTIVE

- The objective of this cost analyses was to assess the implications for Multiple Sclerosis patients and Spanish healthcare system associated with SC versus IV administration of natalizumab therapy in the reference and regional hospital.

CONCLUSIONS

- Besides the potential benefits of convenient administration, improving work-life balance and quality of life for patients, natalizumab SC was associated with cost-savings for healthcare system by reducing total treatment time, and freeing up infusion suit capacity.
- From a socio-economic perspective, additional cost-savings could be derived with administration of natalizumab SC at regional hospital by reducing productivity loss of patients and caregivers.



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Introduction

- Multiple sclerosis is an inflammatory, demyelinating and neurodegenerative disease of the central nervous system with an estimated prevalence of 80-180 cases/100,000 inhabitants in Spain^{1,2}.
- A formulation of natalizumab subcutaneous (SC), disease-modifying high-efficacy MS therapy, has been recently authorized offering two routes of administration for individual patient needs³.
- A national expert panel (Tysabri[®] in Subcutaneous Administration, TASC), including neurologists, pharmacists and nurses, provided resource consumption for drug and patient preparation, administration and documentation, considering patient pathway, according to natalizumab intravenous (IV) experience or an estimated experienced with SC natalizumab administration.
- As of March 31, 2022, over 10,796 patients have been treated with natalizumab SC representing 4,063 patients years of experience, based on clinical trials and prescription data⁴.

Methods

- A cost analysis model was developed to estimate the annual cost of natalizumab SC and IV, considering a two-year time horizon.
- It was assumed that all IV administrations and the first 6 SC administrations were performed in hospital-day (infusion suite facilities) at reference-hospital. For successive SC injections, consultation facilities at reference-hospital or regional-hospital were considered to assess both hospital settings. According recommended posology 13 doses/year were considered.
- TASC working group provided the resource consumption for drug and patient preparation, administration, observation and documentation in reference and regional hospital. In this model patient data was not collected. Dedication time for administration process per doses into the hospital are details in Table 1.
- Productivity loss time for patients and caregivers (accompanying 20% of SC and 35% of IV administrations) associated to travel, waiting time and administration process into hospital were assessed (Table 2).
- Equivalent drug acquisition cost of SC and IV natalizumab was assumed, so it was excluded of this analysis.
- National salaries for healthcare-professionals were used for cost-estimation (€, year 2021).

Results

- Total cost/patient resulted € 3,213.54; € 1,210.00 and € 1,139.54 (year 1); and € 2,349.81, € 670.93 and € 540.34 (year 2) for IV at reference-hospital, SC at reference-hospital and SC at regional-hospital, respectively (Figure 1).
- Natalizumab SC administered at reference-hospital setting would reduce overall costs by 62.3% (-€ 2,003.54/patient in year 1) and 71.4% (-€ 1,678.88/patient in year 2) versus natalizumab IV. With regional-hospital administration natalizumab SC reductions would be 64.5% (-€ 2,074.00/patient in year 1) and 77.0% (-€ 1,809.47/patient in year 2) (Figure 1).

- Total time/patient resulted 120h, 54h and 50h (year 1); and 94h, 42h and 34h (year 2) for IV at reference-hospital, SC at reference-hospital and SC at regional-hospital, respectively (Figure 2).
- At years 1 and 2, total time and cost saving (excluding drug acquisition cost)/patient driven by saving on administration, patient and caregiver productivity for natalizumab SC at reference-hospital versus natalizumab IV at reference-hospital were 116h (54.6%) and €3,682.42 (66.2%) (Figure 1 and 2). In case of natalizumab SC at regional-hospital were 129h (60.6%) and €3,883.47 (69.8%) (Figure 1 and 2).

Figure 1. Cost comparative of natalizumab SC vs IV

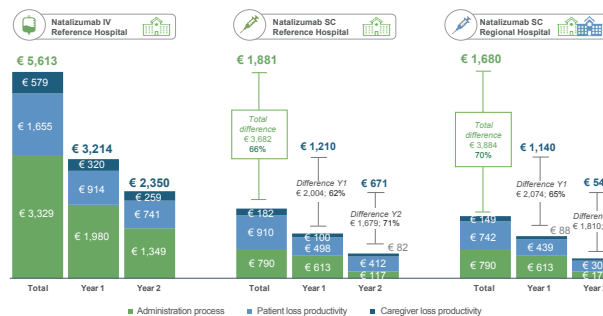


Figure 2. Time comparative of natalizumab SC vs IV

