Healthcare and Economic Burden of Intravenous and Subcutaneous Immunoglobulin Treatment in Three Autoimmune Neuromuscular Diseases: A Bicentric Spanish Experience

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INTRODUCTION

- **Intravenous immunoglobulin** (IVIG) is guideline-recommended treatment for Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)[1], Multifocal Motor Neuropathy (MMN)[2], and Myasthenia Gravis (MG)[3].
- **Subcutaneous immunoglobulin** (SCIG) allows home use, with a favorable safety profile, and potential cost savings[4].
- This study **examines and compares the healthcare resource utilization and associated costs** in patients treated with IVIG or SCIG in two tertiary hospitals in Spain.

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METHODS

- Data from two hospital cohorts of patients who **switched from IVIG to SCIG** were retrospectively collected.
- The analysis was carried out from the **perspective of the Spanish National Health System (NHS)**[5].
- **Unit costs** from Spanish published sources were applied to resource use, and **per patient-year total costs** of SCIG and IVIG treatment modalities **were compared** (Table 1). Treatment acquisition costs were not considered in the analysis, as they were assumed to be equivalent[6].
- **Resource use** related to administrations, premedication, adverse events, health education, annual follow-ups, and hospital pharmacy dispensing from both hospitals was collected.

Table 1. Unit costs

Resource	Costs (€,2025)	Source
Administration (per daily session)	€ 246.54	Mean tariff in 5 Spanish regions[7]
Paracetamol (1 g)	€ 0.0610	BotPLUS[8]
Polaramine (1 g)	€ 0.1224	BotPLUS[8]
Cetirizine (1 g)	€ 0.0100	BotPLUS[8]
Methylprednisolone (1 g)	€ 0.0120	BotPLUS[8]
Clexane (1 g)	€ 0.0460	BotPLUS[8]
Acute myocardial infarction (hospitalization)	€ 7,866.10	Ministry of Health (MBDS – RSCA)[9]
Visits to the emergency room*	€ 280.88	Mean tariff in 4 Spanish regions[7]
Consultation with specialist	€ 127.50	Mean tariff in 3 Spanish regions[7]
Consultation with specialist nurse	€ 61.24	Mean tariff in 4 Spanish region[7]
Health education (session)	€ 39.50	Mean tariff in 3 Spanish regions[7]
Dispensation in hospital pharmacy	€ 6.40	Calleja-Hernández et al.[10]

MBDS – RSCA: mínimum basic data set – registry of specialized care activity. *The same patient attended the emergency department for polyuria and edema (without hospitalisation).

RESULTS

- A total of **14 patients were analyzed** (Table 2).

Table 2. Patients' characteristics

	Mean / n	SD / %
Patients with Autoimmune neuromuscular diseases [n (%)]	14	(100)
Chronic Inflammatory Demyelinating Polyneuropathy	8	(57.14)
Multifocal Motor Neuropathy	4	(28.57)
Myasthenia Gravis	2	(14.29)
Age [mean (SD)]	66.72	(14.67)
Female [n (%)]	7	(50)
Follow-up duration with IVIG [months, mean (SD)]	80.50	(38.98)
Follow-up duration with SCIG [months, mean (SD)]	25.50	(20.80)

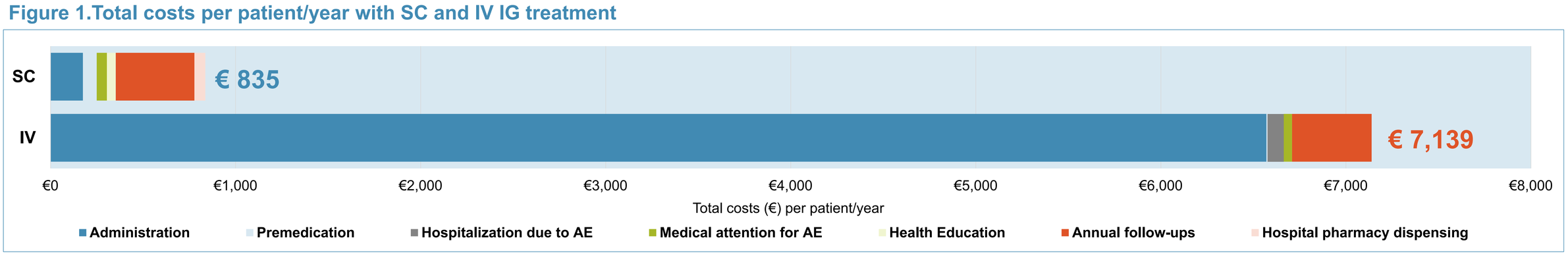
- The combined (average) resource utilization for both hospitals was valued using unit costs (Table 3).
- Total annual costs per patient and treatment type (SC or IV) are presented in Figure 1. The **annual cost per treated patient in the IV arm was almost 9 times higher than that of patients treated with SCIG.**

Table 3. Resource use

Resource	IVIG	SCIG
Treatment administrations (in hospital) (days per year)	26.65	2.85
Premedication (% patients who require it)		
Paracetamol 1g	25%	14%
Polaramine 2 mg	25%	0%
Cetirizine 10 mg	0%	14%
Methylprednisolone 60 mg	25%	0%
Clexane 100 mg	0%	14%
Adverse events		
Total adverse events	33	13
Hospitalization/visit to emergency room due to AE	2	0
Health education (sessions per patient)	0	2.54
Additional follow-ups (days per year)		
Consultation with specialist	3.38	2.86
Consultation with specialist nurse	0	1
Hospital pharmacy dispensations per patient (per year)	0	9

- The main **cost drivers** were administration expenses, followed by hospitalizations due to adverse events. The remaining cost categories were similar and had a minor relative impact in both arms.

Figure 1.Total costs per patient/year with SC and IV IG treatment



CONCLUSIONS

- The treatment of patients with CIDP, MMN, and MG entails a substantial per-patient annual cost, beyond the pharmacological cost, when immunoglobulin is administered intravenously.
- **The use of subcutaneous immunoglobulin markedly reduces the per-patient annual cost faced by the NHS, by up to ninefold,** compared with intravenous immunoglobulin.
- Future research should evaluate the impact of SCIG on patients' quality of life and on indirect costs from a societal perspective.

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