Annual cost of health resources associated to non-infectious uveitis management in Spain

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Introduction

- The term uveitis is used to describe a range of inflammatory conditions that affect the uvea, which is the middle layer of the eye. The uvea is responsible for supplying most of the blood required by the retina (1).
- The most widely used classification system for uveitis was established by the Standardization of Uveitis Nomenclature Working Group (SUN) in 2005. It is based on the primary anatomic location of the inflammation and divides uveitis into anterior uveitis, intermediate uveitis, posterior uveitis, and panuveitis (1,2).
- Additionally, uveitis can be classified as chronic, acute, or recurrent, depending on how many episodes of inflammation a patient has a year and how long these last (2).
- The etiology of uveitis is varied and the condition can be limited to the eye or occur in association with systemic inflammatory or autoimmune disorders (1).
- Based on data from Spain and other parts of the world, uveitis occurs in 20-30% of patients with ankylosing spondylitis, in 12-37% of those with reactive arthritis, in 7-16% of those with psoriatic arthritis, and in 2-9% of those with inflammatory bowel disease (3,4,5).
- Uveitis is a serious disease with serious consequences. In developed countries, it is responsible for 5-20% of all cases of legal blindness and 10% of visual impairments (1,6). These conditions, in turn, are associated with occupational disability.
- Additionally, patients with uveitis, the majority of whom are of working age when diagnosed, need long-term drug treatment, which can contribute to lost work and productivity due to side effects and medical visits.
- There is, however, very little information available on the economic or social costs of uveitis (1).

Objectives

- Due to the lack of data concerning the epidemiology and cost of non-infectious uveitis (NIU) in Spain, the purpose of the present study was to identify and estimate the incidence of different types of non-infectious uveitis and the annual cost of resources used for this disease in Spain.

Total annual associated costs per type of resource used (Euro)

Location	Referrals	Diagnostic visits	Diagnostic tests	Pharmacological treatment	Check up visits	Check up tests	Pharmacological treatment of recurrences	Treatment of complications	Total costs	Per Patient Costs
AAU	525,725	3,388,937	807,434	1,918,756	3,043,655	823,008	151,820	3,677,418	14,336,755	2,811
ACAU	121,206	308,085	57,273	1,077,400	276,695	87,892	-	983,022	2,911,576	6,080
PCAU	75,840	308,085	100,025	5,309,761	368,927	336,878	-	898,305	7,397,824	15,738
PU	330,613	1,386,383	557,618	16,561,092	830,087	1,493,577	978,178	145,778	22,283,330	15,919
IU	97,536	462,127	142,409	1,557,502	276,695	246,393	7,662	1,421,518	4,211,846	6,889
PnU	227,991	1,386,383	556,990	17,177,846	830,087	1,494,682	3,777,588	1,241,377	26,692,948	18,922
Total costs	1,378,913	7,240,003	2,221,751	43,602,359	5,626,150	4,482,432	4,915,250	8,367,420	77,834,282	-

Table 1 shows that initial drug treatment was associated to the highest cost. It also shows total associated costs per patient and per type of NIU. PnU, PU, and AAU management were associated to the highest associated costs.

Total cost of NIU in Spain by type of uveitis

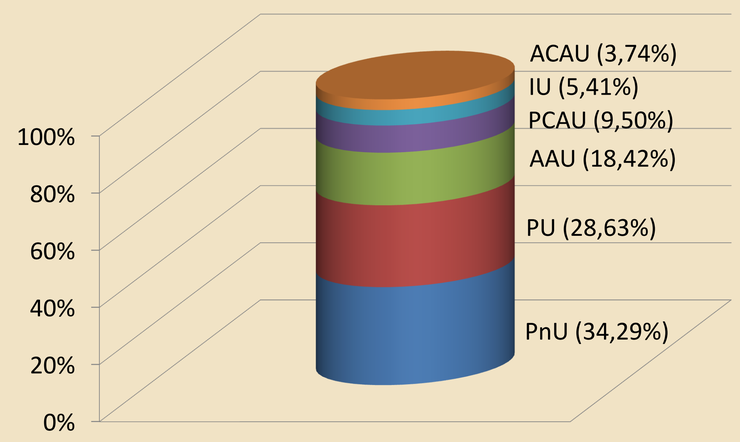

Figure 1 shows a breakdown of total costs by type of uveitis. These graphs clearly shows that the direct costs of non-infectious uveitis depend on the location of the inflammation.

Results

- By extrapolating data from the literature (7) to the Spanish population in 2011 and adjusting for age and sex, 9,398 new NIU patients were diagnosed, with a 45% were male and 70% of cases occurring in the age range of 16 to 65 years.
- The incidence regarding the type of uveitis was 55% for the Acute Anterior Uveitis (AAU), the most common uveitis in Spain. Then Posterior Uveitis (PU) and Panuveitis (PnU) with a 15%, and Adult Chronic Anterior Uveitis, Pediatric Chronic Anterior Uveitis and Intermediate Uveitis with a 5%.
- The total calculated cost attributed to newly diagnosed NIU in 2011 in Spain was €77,834,282.10. Initial pharmacological treatment was the most costly resource with €43,602,359.29 and included topical cyclopegics, midriatics and steroids, systemic steroids, sulfasalazine, antimetabolites, T-cell inhibitors and TNF-alpha inhibitors. The following highest cost resource was surgical treatment of complications (€8,367,420.43).
- Furthermore, the use of resources with the lowest price were the referrals (€1,378,913.57) and the diagnostic tests (€2,221,751.72) (Table 1).
- With regards to the type of uveitis, the highest associated costs corresponded to PnU (€26,692,948.29), followed by PU (€22,283,330.50) and AAU (€14,336,755.38). On the other hand, other types of uveitis have lower costs as ACAU (€2,911,576.82), IU (€4,211,846.42) and PCAU (€7,397,824.68).
- The total cost per patient were also very different between types of uveitis. The highest cost correspond to PnU (€18,922.35), followed by PU (€15,919.52) and PCAU (€15,738.93). The lowest cost correspond to AAU (€2,811.17), showing big differences among the total cost per patient taking into account the type of uveitis.

Methods

- A systematic literature search was performed in order to identify epidemiological data (incidence and prevalence data) and direct costs (burden) of NIU in Spain. It was found little information on clinical management aspects and no information about prevalence, incidence and cost of NIU in Spain.
- The lack of information was complemented with an expert panel consensus which was formed by five experts in uveitis (two ophthalmologists and three rheumatologists) who were members of specialized uveitis units in tertiary Spanish hospitals.
- The experts gave their opinion on the epidemiological data and the use of resources retrieved in the literature search, and this information was used to prepare a structured questionnaire of 126 questions. Having reviewed the answers of the questionnaire and calculated averages for relevant questions, the experts indicated their level of agreement.
- Finally, the panelists were again contacted to provide their opinion on points for which a strong level of agreement had not been reached.

Incidence

- Our panel of experts agreed on that the incidence rates from the US identified in the literature (7) would be the most representative figure for Spain. It was adjusted to the Spanish population by age and sex (8) and was then used to estimate the number of new cases of uveitis in Spain in 2011.

Costs

- To estimate the direct costs of NIU, it was estimated the use of resources: referrals; diagnosis; drug treatment; follow-up; and complications.
- To calculate the monetary cost of the relevant resources, we based our calculations on prices and fees (updated for 2011) published by the health cost databases of Oblikue Consulting (9) and the Official Medical College of Barcelona (COMB) (10).
- Drug costs were calculated by consulting in the Integra database of the Spanish Ministry of Health the wholesale prices (including VAT) for February 2012 (11).
- Finally, total costs and mean costs per patient for the different types of non-infectious uveitis were computed.

Conclusions

- NIU is a prevalent disease producing high costs related to diagnosis and treatment in Spain.
- An early diagnosis and an efficient management of the disease would allow substantial cost savings for the National Health System.

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AAU: Acute Anterior Uveitis; ACAU: Adult Chronic Anterior Uveitis; IU: Intermediate Uveitis; PCAU: Pediatric Chronic Anterior Uveitis; PnU: Panuveitis; PU: Posterior Uveitis

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