RESOURCE CONSUMPTION ANALYSIS IN PATIENTS WITH HAEMOPHILIA A WITHOUT INHIBITORS ON PROPHYLAXIS WITH FVIII BEFORE SWITCHING TO EMICIZUMAB

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BACKGROUND

- Congenital Haemophilia A (HA) is an inherited X-linked bleeding disorder caused by a deficiency of coagulation factor VIII (FVIII), characterized by spontaneous bleeding episodes, particularly in joints and muscles.
- Until a few years ago the standard therapy for patients with HA was the prophylactic treatment with replacement FVIII[1], with a consumption variability that often lead to frequent intravenous infusions[2].
- Emicizumab is a recombinant, humanized, bi-specific monoclonal antibody subcutaneously administered, reimbursed in Italy for routine prophylaxis of HA patients with FVIII inhibitors (from 2018) and severe HA patients without FVIII inhibitors (from 2020).
- To date, there is limited evidence about the cost of the different prophylactic treatments so there is the need to better understand the cost of the current standard of care through accurate estimates, in particular by comparing recombinant factor FVIII therapies and emicizumab costs.

OBJECTIVES

The aim of this analysis was to describe the prophylactic treatment with FVIII (standard and extended half-life) in the 12 months before the switch to emicizumab in terms of consumption and direct costs on the Italian National Health System (iNHS) in patients with HA without FVIII inhibitors and to evaluate the potential costs' reduction in case of switch to emicizumab.

METHODS

- A retrospective analysis was performed using administrative databases including male patients with HA, who started treatment with emicizumab between January 2018 and September 2022.
- The index date corresponded to the first emicizumab prescription during the inclusion period.
- The patients were analyzed in the year before the index date, in terms of characteristics, pharmacological treatments (considering drugs for haemophilia A and other drugs separately) and consumption of resources and related direct costs sustained by the NHS (hospital admissions, laboratory tests, specialist visits, diagnostic procedures).
- The administration regimen was evaluated by applying the algorithm developed by Vekeman et al., which allowed to distinguish the prophylactic treatment from the on-demand one on the basis of the total units of FVIII dispensed in a year by age group[3].
- The consumption of standard half-life and extended half-life FVIII was evaluated only in patients on prophylaxis and without FVIII inhibitors (identified by the absence of prescriptions for bypassing agents or FVIII dosages too high to suggest an immune tolerance induction).
- Since patient weight is not available within administrative databases, it was estimated by gender and age group[4].

RESULTS

- 72 patients with HA receiving emicizumab were identified; of these, 32 patients without FVIII inhibitor (mean age 28.2±21.2 years, N=12 <13 years) were previously on prophylaxis with FVIII standard half-life (N=21, 7 of which <13 years) or extended half-life FVIII (N=11, 5 of which <13 years) (Table 1).
- The estimated mean weight was 58.7 ± 21.2 kg.

Table 1. Patients characteristics before switiching to emicizumab

Table 1	Patients on prophylaxis (N=32)	Extendend half-life FVIII (N=11)	Standard half-life FVIII (N=21)
Age (years) on index date, average ± SD	28.2 ± 21.2	26.6 ± 24.1	29.0 ± 20.1
Age range, n (%)			
0-12 yo	12 (37.5%)	5 (45.5%)	7 (33.3%)
13-17 yo, n (%)	0	0	0
18-34 yo, n (%)	9 (28.1%)	NR	6 (28.6%)
35-64 yo, n (%)	9 (28.1%)	NR	8 (38.1%)
≥ 65 yo, n (%)	NR	NR	0
Charlson index, average ± SD	0.2 ± 0.5	0.4 ± 0.7	0.1 ± 0.4
Charlson index = 0, n (%)	26 (81.3%)	8 (72.7%)	18 (85.7%)
Charlson index = 1-2, n (%)	6 (18.8%)	NR	NR

NR, not reported for data privacy rule (<4 patients analyzed)

In the 32 patients receiving prophylaxis in the year before starting treatment with emicizumab :

- The mean consumption of FVIII was 382,398 (± SD 339,979) international units (IU) per patient (Figure 1).
- The mean number of prescriptions for non-hemophilia-related medications was 5.5 ± 7.4 per patient .
- the mean number of prescriptions for tests/specialist visits was 4.2 ± 5.1 (Table 2) per patient .

Figura 1. Mean annual FVIII consumption per patient in IU (international units)

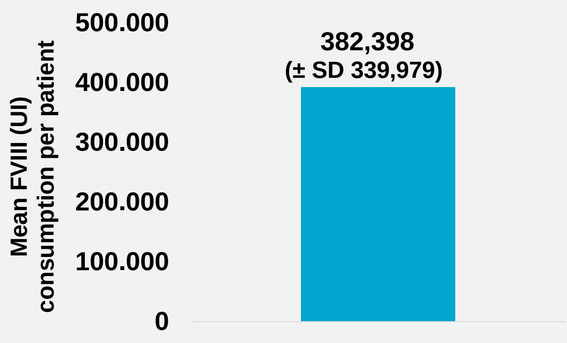
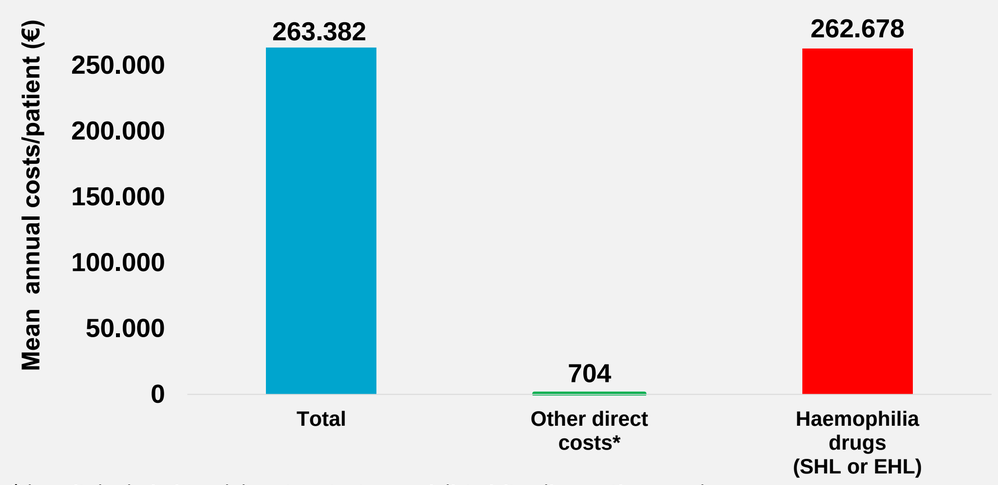


Table 2	Patients on prophylaxis (N=32)
Mean N. ± SD haemophilia A prescriptions	11.6 ± 10.0
Mean N. ± SD other drugs prescriptions	5.5 ± 7.4
Mean N. ± SD outpatient specialist services	4.2 ± 5.1
Mean N. ± SD hospitalizations	0 ± 0.2

- The average total annual expenditure per patient was almost all related to FVIII treatment consumption, with an average of €262,678 (VAT included) (Figure 2). In fact the average of the other medical direct costs were only € 704 (VAT included) per patient.

Figure 2. Mean of annual costs (€) per patient on prophylaxis with FVIII(N=32)



* hospital admissions, laboratory tests, specialist visits, diagnostic procedures

- Considering a patient with a mean weight of 58.7kg the switch to emicizumab, for one year of maintenance, led to a theoretical costs' reduction of approximately -20%.

CONCLUSION

The data from this analysis, based on a sample of 32 patients, shows that the mean annual FVIII prophylaxis consumption (382,398 IU) before switching to emicizumab is higher than what reported in the latest descriptive analysis on FVIII consumption conducted in Italy[5].

This could be the result of a therapeutic approach's change that, in line with the updated WFH 2020 guidelines and in order to preserve the patients from the risk of bleeding, led the clinicians to increase the trough level goal from 1% to >3%-5% or higher[6], with a consequent higher burden for the patients and a costs' increase for the NHS.

Once the post switch data following 12 months of treatment will be available for all patients, further analyses will be conducted in order to directly compare the outcomes and management costs of patients with haemophilia A pre- and post-switch to emicizumab.

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