CURRENT USE OF FACTOR VIII PRODUCTS IN CHILDREN AND ADOLESCENTS WITH MODERATE OR SEVERE HEMOPHILIA A

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OBJECTIVE
To describe the real-world demographics and treatment characteristics of children with moderate and severe hemophilia A, treated with SHL and EHL, FVIII products in Europe, including factor utilization (international units) with SHL and EHL FVIII products.

INTRODUCTION

• Hemophilia A is an X-linked congenital bleeding disorder caused by a deficiency of coagulation factor VIII. It affects approximately 1 in 5,000 male births; the global prevalence of hemophilia A has been estimated to be >150,000 individuals.1

• Without safe and effective treatment, the life expectancy and quality of life (QoL) of patients with hemophilia A is lower than that of the general population due to bleedings and related long-term complications, such as hemophilic arthropathy.1

• The main treatment for hemophilia A is to replace the missing factor, i.e. concentrates of clotting factor VIII (FVIII). Prophylaxis, rather than on-demand treatment, is now preferred in nearly all developed countries for prevention of bleeds and joint damage in severe hemophilia A patients.2

• For prophylaxis, patients with hemophilia A are required to regularly take continuous FVIII as replacement therapy. Standard half-life (SHL) FVIII concentrates (plasma-derived and recombinant) have been the mainstay of treatment, but in recent years (since 2015), extended half-life (EHL) concentrates for hemophilia A have been made available.

• SHL FVIII concentrates are commonly used but require frequent infusions. High frequency infusions can be a major barrier to patient adherence, increasing the risk of bleeding episodes and joint damage and negatively affecting patient QoL.3

• Currently marketed EHL FVIII concentrates aim to reduce the frequency of dosing, while optimizing protection against bleeding. However, little evidence is available to describe how these products are used in actual clinical practice.

METHODS

We conducted a descriptive analysis, utilizing data from a pre-existing data source, the Cost of Hemophilia in Europe: A Socioeconomic Survey (CHESS) Pediatrics study. This study was a comprehensive chart review and survey of male children (<18 years) with moderate and severe hemophilia, and their caregivers, designed to capture the annualized economic and psychosocial burden of severe hemophilia in five European countries (France, Germany, Italy, Spain, and the UK). Data for this analysis were collected between December 2017 and March 2018.

In this analysis, only children and adolescents with documented moderate or severe hemophilia A were included. Patients with hemophilia B were excluded.

For the primary analysis, utilization data were collected retrospectively for the 12 months prior to the index date (defined as the date of inclusion of an individual patient into the study). Statistical analyses were exploratory and descriptive in nature. All variables were analyzed with appropriate statistical methods: categorical variables by frequency tables (absolute and relative frequencies) and continuous variables by sample statistics (i.e. mean, standard deviation, minimum, median, quantiles and maximum).

RESULTS

Baseline patient characteristics

A total of 555 male patients with hemophilia A were included in the analysis. Of these, 307 patients were aged 1–11 years, and 248 patients were aged 12–17 years. Approximately half of the patients had a “normal” BMI (n=281; 50.60%) and two-thirds had severe hemophilia (n=261; 65.00%) (Table 1).

Baseline characteristics of patients included in the analysis (N=555)

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<td>83</td>
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<td>183</td>
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<tr>
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Table 1. Baseline characteristics of patients included in the analysis (N=555)

CONCLUSIONS

• This preliminary analysis of moderate and severe hemophilia A indicates that the characteristics of children treated with SHL vs EHL factor VIII products during the study period (prior to March 2018) may differ.

• No statistically significant differences in weekly factor utilization was found between SHL and EHL in this analysis.

• This direct comparison of factor utilization should be interpreted with caution, in the context of the population heterogeneity.

• Increasing treatment options in hemophilia A may provide new opportunities to tailor regimens/utilization to each patient’s unique characteristics and disease course, such as bleeding phenotype, presence/absence of joint damage, pharmacokinetic profile, level of physical activity and adherence, to optimize patient outcomes.

Baseline patient characteristics (contd.)

• Among 555 patients, a total of 404 and 86 patients were receiving SHL and EHL, respectively; in the remaining 65 patients the treatment type was stated as other or was not specified.

• Of the 468 patients who received EHL, 32.70% (n=32) were between 0–11 years of age, and 62.80% (n=54) were between 12–17 years of age. For the patients who received SHL, 58.00% (n=236) were between 0–11 years of age and 41.10% (n=168) were between 12–17 years of age (see Figure 1).

• In France, Germany, Italy, Spain and the UK, the EHL use was reported in 30.20%, 12.80%, 10.50%, 10.50% and 36.00% of all patients receiving EHL respectively (see Figure 1).

• Importantly, EHL treated patients had a trend towards more severe disease (BMI severity, history of inhibitors, annual bleed rate and chronically damaged joints). Treatment adherence and proportion of target joints were similar in patients treated with SHL or EHL (see Figure 1).

Figure 1. Comparison of EHL versus SHL use in children and adolescents with hemophilia A (N=555)

Weekly factor utilization by treatment group

• With prophylaxis, weekly infusion frequency was lower in patients treated with EHL (median: 2 [mean: 2.5]) compared to SHL (median: 3 [mean: 3.0]) (Figure 2A). This would translate to an annual frequency of 104 and 166 infusions with EHL and SHL, respectively.

• For EHL, median factor utilization per patient was 95.81 kg (94.59 kg; range: 13.21–16.82 kg) whereas for SHL median factor utilization per patient was 75.61 kg (mean: 83.69 kg; range: 3.91–7.98 kg). Median weekly factor utilization was not statistically different across treatment groups (see Figure 2B).

Figure 2. (A) Weekly infusion frequency, (B) Weekly factor utilization (IU/kg)

References


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Figure 2A. Weekly factor utilization (IU/kg)