Haemophilia registry of the Medical Committee of the Swiss Hemophilia Society
Update and annual survey 2010–2011

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Keywords
Haemophilia, registry, epidemiology, quality control, Switzerland

Summary
The Haemophilia Registry of the Swiss Haemophilia Society was created in the year 2000. The latest records from October 31st 2011 are presented here. Included are all patients with haemophilia A or B and other inherited coagulation disorders (including VWD patients with R-Co activity below 10%) known and followed by the 11 paediatric and 12 adult haemophilia treatment or reference centers. Currently there are 950 patients registered, the majority of which (585) having haemophilia A. Disease severity is graded according to ISTH criteria and its distribution between mild, moderate and severe haemophilia is similar to data from other European and American registries. The majority (about two thirds) of Swiss patients with haemophilia A or B are treated on-demand, with only about 20% of patients being on prophylaxis. The figure is different in paediatrics and young adults (1st and 2nd decades), where 80 to 90% of patients with haemophilia A are under regular prophylaxis. Interestingly enough, use of factor concentrates, although readily available, is rather low in Switzerland, especially when taking the country’s GDP into account. The total amount of factor VIII and IX was 4.94 U pro capita, comparable to other European countries with distinctly lower incomes (Poland, Slovakia, Hungary). This finding is mainly due to the afore mentioned low rate of prophylactic treatment of haemophilia in our country. Our registry remains an important instrument of quality control of haemophilia therapy in Switzerland.

Schlüsselwörter
Hämophilie, Register, Epidemiologie, Qualitätssicherung, Schweiz

Zusammenfassung

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Hämophilieregister der Schweizerischen Hämophiliegesellschaft – Update und Jahresbericht 2010–2011

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Eleven years ago, in the year 2000, the Swiss Haemophilia Society set the base of the IT concept for the Swiss Hemophilia Registry. Since 2004 the registry runs on the actual internet platform with double password security. In 2011, the whole registry database moved from a local to the HIN (Health Info Net) server in order to significantly improve data security, management and controlling. Data access is secured by double password and continuous monitoring of the access to the database.

The latest records from October 31st 2011 are presented here.

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Patients

A total number of 950 patients (compared to 904 in 2008) were included in the registry, corresponding to a plus of 5%. This small increase was mainly due to the inclusion of a new adult haemophilia treatment center (University Hospital CHUV in Lausanne) in the year 2010. Crude incidence and prevalence of haemophilia in Switzerland remained stable over the preceding five years. In 2010 there were four newborns diagnosed with haemophilia A (2 severe and 2 mild), and only one with moderate haemophilia A in 2011. As described in other European populations, Swiss people with haemophilia A/B made up a slowly but consistently ageing group of patients, with an average age of 41.5 years, compared to 40 years in 2009 and 37 years in 2006.

43 patients (compared to 40 in 2009) could not be assigned to a specific center and were excluded for this evaluation.

Type of haemophilia and other rare coagulation disorders

Generally speaking, the distribution of the registered coagulopathies has not changed over the years and is shown in Figure 1: haemophilia A 585 (64%), haemophilia B 116 (13%), von Willebrand disease 136 (15%), other coagulopathies 70 (8%), including deficiencies concerning:

- afibrinogenaemia (n = 11)
- factor VII (n = 29)
- factor X (n = 4)
- factor XI (n = 8)
- factor XIII (n = 14)
- factor V/VIII (n = 4)

Disease severity, inhibitor status

Disease severity was classified according to the ISTH standards (1): severe haemophilia A/B < 1%, moderate 1–5%, and mild 6–40% (Fig. 2):

- severe type A patients 210 (38%), moderate type A 111 (20%), mild type A 234 (42%),
- severe type B patients 33 (33%), moderate type B 35 (34%), and mild type B 33 (33%).

Haemophilia therapy

Data on treatment types are shown in Figure 3: In Switzerland overall, on-demand treatment still largely exceeds prophylaxis for both haemophilia A and B. In haemophilia A 369 (63%) patients performed on-demand treatment vs. 119 (20%) prophylaxis; the figure in haemophilia B was even more obvious: 78 (67%) on-demand vs. 16 (14%) prophylaxis. Over time, however, a progressive shift was observed towards prophylactic treatment, also in adults (data not shown).

For two years now, a new treatment group (sporadic therapy) (2), representing 8% of haemophilia A and 10% of haemophilia B patients, was introduced to describe mainly mild haemophilics requiring such a minimal treatment that it cannot be called on-demand. It is highly probable that not all concerned patients have already been correctly transferred from the on-demand to the sporadic group. Treatment status of about 9% of patients remained unknown.

Figure 4 shows the proportion of patients under prophylactic treatment according to age. During the first decade, 87% of children with severe haemophilia A and 100% with haemophilia B were under regular prophylaxis; in the second decade of life, 91% of adolescents with factor VIII deficiency and 22% of those with factor IX deficiency were still under prophylaxis. Numbers declined then rapidly, lying under 20% from the 5th decade onwards. There was no trend towards restarting of prophylaxis in the older age groups.
Mortality statistics

Death registration represents a small file in the registry. In the period 1996–2011, a total number of 73 patients have been reported to be dead.

During the years 2010 and 2011, twelve patients died (3 from cancer, 2 from intra-cerebral bleeds, 3 from end-stage liver disease, 1 from cardiovascular disorder and 3 from other or unknown causes). The last HIV-related death was in 2003 (Fig. 5).

Use of factor concentrates in Swiss patients

Switzerland had about 7.8 Mio inhabitants in the year 2010. Table 1 shows the amounts of factor VIII and IX concentrates used in the country over the last 10 years. The amount of factor concentrates (VIII and IX together) rose from 3.77 in 2001 to 4.94 Units per capita in 2010. These numbers were low when compared to those from other Western and Central European countries, especially when taking their GDP’s into account (Fig. 6). In our view, this finding was mainly explained by the rather low percentage of PWH being under regular prophylactic treatment in our country.

There was a small but continuous trend towards higher global consumption of concentrates over the ten years observation period and, as seen in other affluent countries, towards a rising use of recombinant products especially in haemophilia A. They represented about 79% of the whole use of factor VIII in 2010 compared to only 12% in haemophilia B because there was only one rFIX registered in Switzerland last year.

Quality control

Currently, there are 50 authorized users in the registry, all accredited members of the Medical Committee of the Swiss Haemophilia Society. The history of their logins as well as the quality and the regularity of their inputs in the registry are controlled once a year. Compliance to the rules set by the Medical Committee is one of the key cri-
tions for the accreditation and re-accreditation/validation of the corresponding haemophilia reference or treatment center. Currently, there are

- two reference and nine treatment centers for children and
- five reference and seven treatment centers for adults in Switzerland.

Apart from three small centers, all others actually meet the compliance criteria, yearly editing the medical data of over 85% of their patients and reporting on the follow-up of at least 3 (for treatment centers) or 20 (for reference centers) severe haemophiliacs during the last 12 months.

Since 2009, the registry exerts a continuous control of the last check-up dates; this is a very valuable tool to prospectively assess quality of medical care in haemophilia and help to ensure at least one annual check-up in an accredited center for patients with severe disease. Currently, compliance rate to this rule is 72%, far from ideal but significantly better than last year as it reached only about 50%.

**Conclusion**

Current status and outlook of the Swiss registry are very encouraging. After 16 years it really starts to be self-acting. For haemophilia specialists it has become a motivating tool to put in data, as it provides useful epidemiological, clinical but also economical data (e.g. global and per capita use of factor concentrates).

In near future the registry will be used for prospective quality control of haemophilia centers and care in Switzerland. The data of the Swiss registry will enable international comparisons in the fields of clinical and epidemiological research in haemophilia. We are still in the process of expanding the spectrum of registered diagnoses, more specifically opening registration to severe inherited platelet disorders (e.g. Bernard-Soulier syndrome and Glanzmann's thrombasthenia) as well as other rare coagulopathies. In haemophilia A and B, patients’ data are being completed, after obtaining every individual informed consent, with the results of the mutation analysis.

Patients also indirectly take advantage from the registry, as they get accurate and

**Tab. 1** Use of factor concentrates in Switzerland over the past ten years

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<td>32 346</td>
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<td>13 254</td>
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<td>90 363</td>
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<td>6 931 500</td>
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rek: rekombinant; plas: plasmatisch

Fig. 6 Haemophilia in Western and Central Europe: concentrate use per capita vs. GDP

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up-to-date information on accredited haemophilia centers in their country. Swiss medical authorities as well as suppliers show increasing interest in the figures of the registry for their planning of emergency supplies of factor concentrates and prediction of overall usage in Switzerland.

Conflict of interest
The authors declares, that he has no conflict of interest.

References