Clotting factors consumption in hemophilia A and B according to patients’ characteristics: results from the FranceCoag Network


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Introduction

Clotting factors consumption in hemophilia is highly variable. Our objectives were to assess the annual mean consumption of Clotting Factor Concentrates (CFC) according to various parameters and to identify the consumption’s associated factors. Indeed, the associations with some parameters are well known: severity of hemophilia, treatment modality (on-demand/prophylaxis), surgical procedures and presence of an inhibitor. However, some of them are less studied: type of hemophilia, age, bodyweight, calendar year; type of clotting factor (recombinant/plasminogenic) and desmopressin administration.

Methods

The analysis was based on the prospective cohort of hemophilia patients, which was implemented in 1994 and includes today almost all patients followed-up in the French treatment centres. Initially focusing on severe haemophilia, the protocol was modified and a large number of mild and moderate hemophilia patients were enrolled since 2003. Thus, we restricted the analysis to periods after 2003. This first analysis focused on periods with on-demand therapy without surgical procedures or inhibitors. The assessment criteria was the number of CFC consumed per kilograms weight per year (IU.kg⁻¹.year⁻¹).

Severity of Hemophilia

Severity is a major factor influencing CFC consumption. For moderate hemophilia, the annual mean consumption varies widely according to the lowest basal level of coagulation factors, falling from 464 IU.kg⁻¹.year⁻¹ for patients presenting a basal level of 1% to 211 IU.kg⁻¹.year⁻¹ for those with a level of 2%.

Bodyweight (among children <16 years old)

The mean consumption per exposure day is higher for patients with a bodyweight below 5 kg compared with those above 5 kg (103 vs. 38.6 IU/kg per exposure day). This may be related to a lower factor recovery among the youngest patients (for whom the dosage should be expressed in IU per square meter of body surface area instead of IU per kilogram) and to the drug packaging which is inadequate for the lowest bodyweight.

Age

Regarding the age, the annual mean consumption rises up to 16-18 years old and decreases after 30 years old.

Conclusion and Perspectives

This study provides an accurate assessment of the national consumptions of CFC in hemophilia according to various parameters. Further parameters will be also investigated (e.g. type of administered clotting factor). A statistical model including all parameters will then be computed to assess the independent impact of each factor. This first analysis was conducted on periods with on demand therapy without surgical procedures or inhibitor. i.e. periods without any major factor influencing CFC consumption. We will investigate, as a second step, the effect of prophylaxis and some surgical procedures on CFC consumption.

Acknowledgments

The Steering Committee (SC) of FranceCoag Network and specific working parties include representatives of:

- Physicians of Haemophilia Treatment Centres (HTC), designated by the Association CaMETH
- Geneticians: C. Costa (Hopital (H) Henri Mondor, Créteil), C. Vinciguerra (H Edouard Herriot, HCL Lyon)
- Pharmacists: V. Chamouard (H Edouard Herriot, HCL Lyon), I. Lopez (H Cochin, Paris), E. Teyssiére (H cardiological, Lille)
- Inserm & UPMC UMR S 943: D. Costagliola, T. Calvez
- French Patients association (APHP): M. Berthom, M. Heron, E. Henry
- French Drug Agency (ANSM-PS): C. Guerin, C. Ruttinger

HCT sorted according to the number of patients followed in the cohort (Physicians,Members of the association CaMETH; H Cardiologue, Lille (H) Goudemand, V. Thibotec, J. Tardieu, B. Bielle, P. de la Rue, C. Demarsin, V. Prat); H de Soignies, Liège (H) Prat; H de la Réunion (H) Minier; H de Valenciennes (H) Mispagni, C. Chauveau, I. Mourot, Y. Baly; HAN, Lyon (H) Demarque, F. Mancini; HAP, Paris (H) Trocmé, J. Mouchel, J. Sarkissian, M. Sauvy; H Carême, Paris (H) Desprechins, F. Pigeon, M. Poirel; H Bicêtre, Le Kremlin-Bicêtre (APHP), France – 7/ Haemophilia Treatment Centre of Caen, France

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All the nurses and study coordinators of the participating HTC are acknowledged. We thank all the patients who have accepted to participate.