Review

Received:
12 January 2016
Accepted:
25 May 2016

Plasma-derived products and Creutzfeldt-Jakob disease: Comparison of legislation around the world

Médicaments dérivés du plasma et maladie de Creutzfeldt-Jakob : comparaison de différentes législations dans le monde

Dr. A. Paret[a,*], Dr. J. Corny[b], Dr. S. Prot-Labarthe[a,c], Prof. J.F. Bussières[b,d], Dr. I. Lopez[e], Prof. O. Bourdon[a,f,g], Dr. A. Rouault[a,f,g]

[a] *Département de pharmacie, hôpital Robert-Debré, AP–HP, 48, boulevard Sérurier, 75019 Paris, France*
[b] *Département de pharmacie, unité de recherche en pratique pharmaceutique, CHU Sainte-Justine, Montréal, QC, Canada*
[c] *Inserm, U1123, ECEVE, 75019 Paris, France*
[d] *Faculté de pharmacie, université de Montréal, Montréal, QC, Canada*
[e] *Pharmacie, HUPC Cochin, AP–HP, 75005 Paris, France*
[f] *Pharmacie clinique, université Paris Descartes, Sorbonne Paris Cité, 75006 Paris, France*
[g] *EA 3412, laboratoire éducation et pratiques de Santé, université Paris 13, Sorbonne Paris Cité, 93017 Bobigny, France*

Summary

Aims. To analyze plasma-derived products (PD) traceability from donor selection to administration to patient. To compare PD recall legislations in France, United States (US), Canada and United Kingdom (UK) related to transmission of Creutzfeldt-Jakob disease (CJD). To develop a flowchart adapted to French context regarding information that should be given to patients.

Method. Literature research, consultation of national agencies and blood donation centers websites. Most recent laws and legislative texts were included.

Results. Twenty-five legislatives texts and 9 articles were retrieved. English donors and those who have stayed in UK more than 3 months (US) or 1 year (Europe) were excluded from plasma donations. In US and Canada, donors who lived during 5 years and more in France were also excluded. Europe and US recommended the recall of PD extracted from donors diagnosed with vCJD after donation. Recommendations concerning information to give to prescribers and patients were variable depending on the country analyzed.

Résumé

Objectifs. Analyser la traçabilité des médicaments dérivés du plasma (MDP), de la sélection des donneurs à l'administration au patient en France, en Grande Bretagne (GB), aux États-Unis (EU) et au Canada. Comparer la législation en termes de rappel de lot, dans la problématique de la transmission de la maladie de Creutzfeldt-Jakob (MCJ). Élaborer un logigramme adapté au contexte français en matière d'information des patients.

Méthodologie. Revue de la littérature, consultation des sites des agences nationales et des centres de don de sang. Sélection des lois et des textes législatifs les plus récents.

Résultats. Vingt-cinq textes législatifs et 9 articles ont été sélectionnés. Les donneurs anglais et ceux ayant séjourné plus de 3 mois (EU) ou 1 an (Europe) en GB sont exclus du don de sang. Aux EU et au Canada, les donneurs ayant séjournés plus de 5 ans en France sont également exclus. L'Europe et les EU recommandent le rappel de lot des MDP issus de donneurs avec suspicion de nouveau variant de MCJ post-don. Les informations fournies aux prescripteurs et aux patients sont variables selon les pays analysés.

* Corresponding author.
e-mail: audreyparet@hotmail.fr (A. Paret).

2211-1042/

Keywords : Legislations comparison, Patients and prescribers information, Creutzfeldt-Jakob disease, Plasma-derived products, Blood donors selection

Mots clés : Comparaison des législations, Information des patients et des prescripteurs, Maladie de Creutzfeldt-Jakob, Médicaments dérivés du plasma, Sélection des donneurs de sang

Introduction

In October 2012, the Laboratoire français du fractionnement et des biotechnologies, also called LFB Biomédicaments recalled 16 plasma-derived products, required by the French Drug Security Agency, Agence nationale de sécurité du médicament (ANSM), after diagnosing a probable variant of Creutzfeldt-Jakob disease (vCJD) in a blood donor.

According to laws in force in France, prescribers were informed [1]. Considering the high number of patients concerned by this recall, ethical issues have been raised about information that should be given to patients: mandatory nature, terms, type of information that should be given to patients and general practitioner, written note in patient file, etc.

Plasma-derived products are essential in the treatment of hemorrhagic or immunologic diseases. Since these drugs are extracted from human plasma, the risk of transmitting infections, such as non-conventional infectious agents or prions has to be considered, even though it has never been proven [2].

Creutzfeldt-Jakob disease (CJD) is a degenerative neurological disorder, which affects the brain, with a progressive loss of mental and physical abilities, and is generally followed by patient's death within 6 months. The disease was first described in 1920. It rarely occurs before the age of 50 (median age 65 years-old). Its incidence around the world is estimated to be one per 1,000,000 [1].

Three different forms of classical CJD are identified: sporadic CJD (no risk factor has been identified yet, 85% of CJD cases), familial CJD (several mutations have been identified), and iatrogenic CJD (risk factors have been identified, such as dura mater or cornea graft, or human hormone injections) [3].

Definitive diagnosis is performed post-mortem because no specific or sensitive enough detection test has been developed yet. Since the incubation duration of classical CJD can last up to several years, this lack of detection test is currently a real issue. In this context, a precise and focused medical interview of blood donors is crucial to identify donors at risk [3].

First cases of variant CJD (vCJD) were reported in United Kingdom (UK) in 1996. This variant has a slower progression (median: 14 months vs. 4.5 months for other forms of CJD) and affects younger patients (median age: 28 years-old) [3].

France and UK populations might have been exposed to vCJD through food in the 1980s, when bovine animals were fed with protein products made from infected cattle or sheep [4].

The number of CJD patients is collected in a European Creutzfeldt-Jakob Disease Surveillance Network called EuroCJD [1]. In France, since 1992, a total of 22,199 CJD suspicions have been reported and 11% of them were confirmed (2475 proven CJD) [5].

Emergence of vCJD raised concerns about safety of blood transfusions and plasma-derived products, since distribution and infectivity of vCJD are higher than sporadic CJD [6,7].

Since 2004, risk of vCJD transmission through blood transfusions has been demonstrated. However, no transmission was reported after administrating labile blood products extracted from patients diagnosed for classical CJD [7]. Risk of transmission of CJD or vCJD with plasma-derived products remains hypothetical. Safety and security remain two essential principles in blood sector.

Aim of the review

Primary objective of this study is to compare legislation and actions to be carried out when CJD or vCJD is diagnosed in a blood donor.

Secondary objectives were to analyze the traceability process of plasma-derived products from donor selection to administration to patient in the context of CJD, and to develop a decision flowchart to be used in the French context for the information of patients when a CJD related plasma-derived product recall occurs.

Methods

A literature review concerning legislation in France, UK, United States of America (USA), and Canada related to plasma-derived products and the risk of CJD transmission was performed. In Canada, Quebec and other provinces were differentiated. As the aim of the study was not to obtain a worldwide comparison of this legislation, but to have a clear overview of differences between different countries, only these four countries for which information was available were chosen.

Literature review was first performed on Pubmed® and Google Scholar® using MeSH terms (''Creutzfeld Jakob disease'', ''plasma substitutes'') and free text (''plasma derivatives'', ''plasma-derived products'', ''médicaments dérivés du sang'', ''médicaments dérivés du plasma''). Titles and abstracts were scanned for relevance and relevant articles were reviewed and included.

Then, a literature review of governmental agencies texts was performed: Légifrance and French Drug Security Agency (ANSM) in France, Health Protection Agency in UK, European