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Mortality related to chronic hepatitis B and chronic hepatitis C in France: Evidence for the role of HIV coinfection and alcohol consumption☆

Patrick Marcellin[1], Françoise Pequignot[2], Elisabeth Delarocque-Astagneau[3], Jean-Pierre Zarski[4], Nathalie Ganne[5], Patrick Hillon[6], Denise Antona[3], Martine Bovet[2], Murielle Mechain[2], Tarik Asselah[1], Jean-Claude Desenclos[3], Eric Jougla[2,*]

[1]*Service d'Hépatologie & INSERM CRB3, University of Paris VII, AP-HP, CHU Beaujon, Clichy, France*
[2]*Centre d'épidémiologie sur les causes médicales de décès CépiDc-INSERM, 44 Chemin de Ronde, 78116 Le Vésinet Cedex, France*
[3]*Département Maladies infectieuses, InVS, Saint Maurice, France*
[4]*Service d'Hépato-Gastroentérologie, CHU Albert Michallon, Grenoble, France*
[5]*Service d'Hépato-Gastroentérologie, CHU Jean Verdier, Bondy, France*
[6]*Service d'Hépato-Gastroentérologie, CHU Bocage, Dijon, France*

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***Background/Aims*: Mortality related to HCV and HBV infections was estimated in France.**

***Methods*: A random sample ($n = 999$) of death certificates was obtained from all death certificates listing HBV, HCV, hepatitis, liver disease, possible complication of cirrhosis, bacterial infection, HIV, or transplantation ($n = 65{,}000$) in France in 2001. Physicians who reported the deaths were sent a questionnaire to identify how many deaths were related to HBV/HCV infection. Completed forms were independently analyzed by a panel of hepatologists. Death rates were estimated according to national population census data.**

***Results*: Estimated annual number of deaths associated with HCV and HBV infection was 3618 and 1507, respectively (6.1 and 2.5 deaths per 100,000 inhabitants, respectively). Estimated number of deaths attributable to HCV or HBV infection was 2646 and 1327, respectively (4.5 and 2.2 deaths per 100,000 inhabitants, respectively). In the HCV infection group, 95 percent had cirrhosis; 33 percent had hepatocellular carcinoma (HCC). In the HBV infection group, 93 percent had cirrhosis; 35 percent had HCC. Eleven percent of deaths occurred in patients with HIV coinfection. Deaths related to HBV or HCV infection occurred at an earlier age in patients with a history of excessive alcohol consumption.**

***Conclusions*: In France, 4000–5000 deaths related to HCV and HBV infection occurred in 2001. Alcohol consumption and HIV infection were important co-factors. These data emphasize the need for ongoing, efficient public health programs that include screening, management, and counseling for HCV- and HBV-infected individuals.**

***Keywords*: Mortality; Hepatitis B; Hepatitis C**

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* Corresponding author. Tel.: +33 (0) 134802430; fax: +33 (0) 134802429.
E-mail address: Eric.Jougla@vesinet.inserm.fr (E. Jougla).

1. Introduction

Hepatitis B virus (HBV) and hepatitis C virus (HCV) infections represent a major global public health problem [1–3]. HBV- and HCV-related chronic hepatitis are the primary causes of cirrhosis and hepatocellular carcinoma (HCC), which in turn cause a high rate of

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morbidity and mortality [4,5]. Very few studies have evaluated the mortality rate associated with these diseases. The natural course of HBV infection varies, from inactive HBsAg carrier to progressive chronic hepatitis, potentially evolving to cirrhosis and HCC [3,6]. Sex, age, alcohol consumption, and coinfection with HIV can affect the natural course of HBV infection [6,7]. It is estimated that HBV-related end-stage liver disease and HCC cause more than 1 million deaths per year worldwide [8]. HCC is the fifth most frequent cancer [9]. The availability of safe and effective vaccines has reduced the burden of diseases [10].

It is commonly accepted that 55–85 percent of cases of acute hepatitis C progress to chronic hepatitis C [11]. Several factors have also affected the rate of progression to cirrhosis, such as age at infection, sex, HIV coinfection, excessive alcohol consumption and insulin resistance [12]. HCV infection accounts for 40 percent of all end-stage cirrhosis cases, 60 percent of HCC cases, and 30 percent of liver transplantation cases [13]. In France, the prevalence of anti-HCV positive adults was estimated at 1.1 percent in 1994 of which 80% were viremic. This figure led to an estimate of 400,000–500,000 people with chronic hepatitis C [14]. In 2004, the overall prevalence of anti-HCV positivity was 0.84 percent [15]. HBsAg prevalence was 0.65 percent [15].

A recent article concluded that HBV and HCV infections account for the majority of cirrhosis and primary liver cancer throughout most of the world [16]. The aim of this study was to estimate the annual mortality rate associated with chronic hepatitis B and hepatitis C and to assess the role of HBV and HCV infection in death. We analyzed the characteristics of the patients, liver disease status at death, and factors associated with mortality.

2. Methods

This study is based on a comprehensive analysis of the deaths that occurred in France in 2001 ($n = 531.072$). Organisation of the study is presented in Fig. 1.

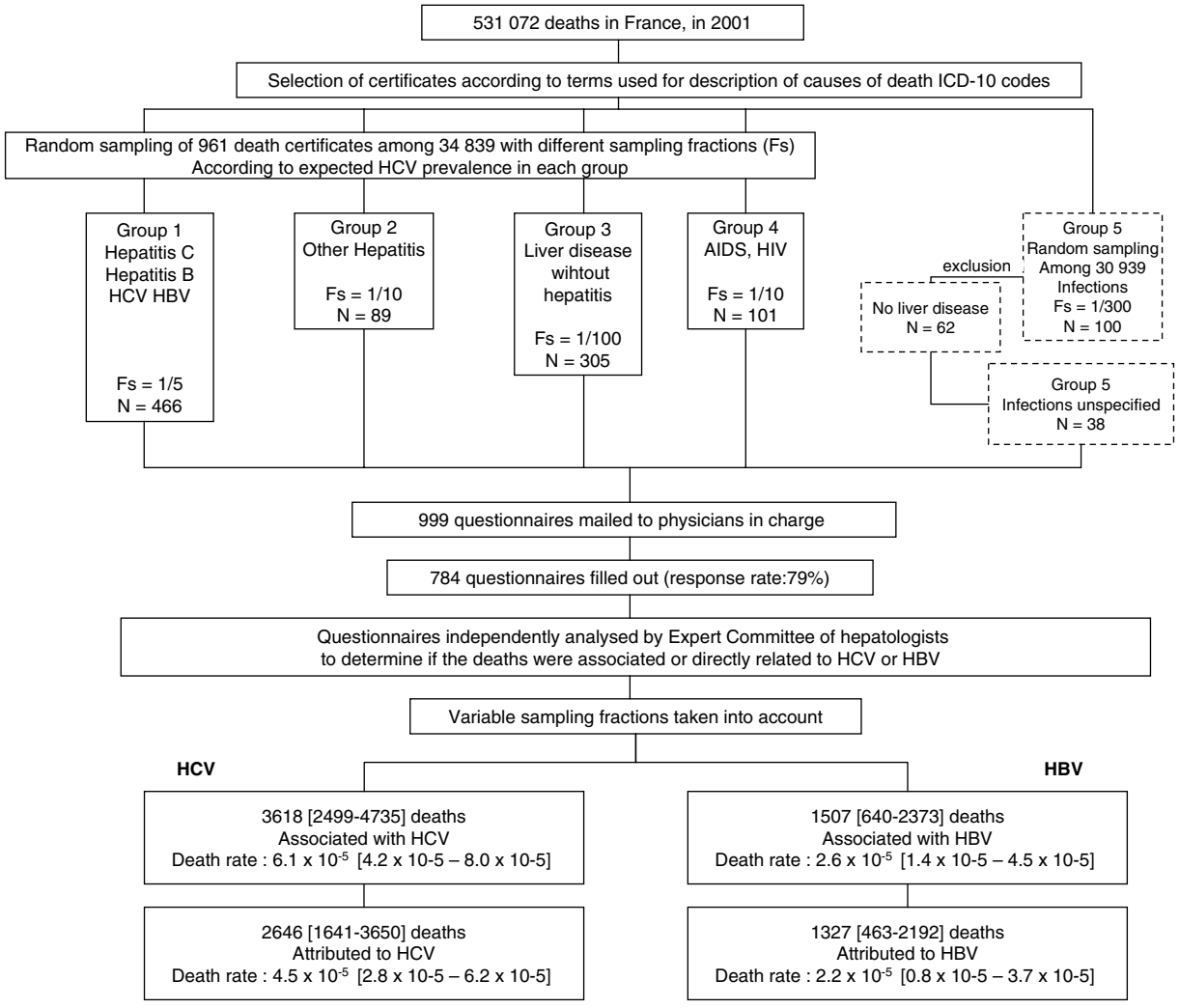

Fig. 1. Organisation of the study: selection and analysis of death certificates and questionnaires sent to physicians who signed the death certificates. Main results.