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Syndromic Surveillance of Acute Liver Failure in Emergency Departments (France, 2010-2012)

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Objective

The objective of this study was to assess the interest and feasibility of using syndromic surveillance data from emergency departments (ED) for the description of clinical and epidemiological characteristics of patients with acute liver failure (ALF) during the 2010-2012 period in France.

Introduction

Syndromic surveillance is usually presented as relevant for event detection. As the data collected automatically from data sources is detailed enough (e.g. ICD10 codes), it may contribute to assess and quantify the burden of health events and describe their main epidemiological features.

In France, besides the national liver transplant data, no surveillance data are available for ALF. Since ALF is severe, threatens the vital prognosis in absence of intensive care, may require liver transplantation and is quite well characterized clinically, patients are very likely to be diagnosed with ALF in ED at the onset phase. ALF is caused by viral infections (hepatitis A, B, C, D or E viruses), drug or toxic exposures, autoimmune or metabolic disorders (Wilson's disease), some of which have public health implications (viral hepatitis, drug or toxicological adverse effects…). We therefore hypothesized that surveillance of ALF through an ED syndromic surveillance system would be feasible. The aim of our work was to explore the relevance of ED data to describe the main features and assess the burden of ALF.

Methods

The OSCOUR® network is a syndromic surveillance system that collects daily and automatically basic epidemiological data for all patients that are seen in participating ED (1). Since January 2013, 414 ED located throughout France (overseas territories included) participate voluntarily to OSCOUR® resulting in coverage of about 65% of all ED attendance in France. Data are collected and transmitted electronically and daily to the French Institute for Public Health Surveillance (InVS) by participating ED. Data include demographic, administrative and medical information including ED admission diagnosis coded in ICD10.

Based on the experience of the OSCOUR® team and the expertise of a group of ED clinicians, we extracted the 2010-2012 data that corresponded to the ICD10 codes related to hepatitis diagnosis and which included ALF (ICD10 code K720). We described the main characteristics (age, sex, region of residence, discharge information, vital prognosis, and vital status) of patients with ALF and then compared ALF patients to those with hepatitis without ALF. We used the Chi-square and t-tests to compare proportions and means, respectively. Data were analyzed with STATA version 11.2 (Stata Corporation, College Station, TX).

Results

Overall, 246 730 attendances with hepatitis were recorded in OSCOUR® database between 2010 and 2012 of which 2 475 (1%) were linked to ALF. Patients with ALF were male in 60%. The median age was 55 years (interquartile range: 42y-68y) for both male and female. However, 92 patients (4%) were under 18 years old. The most frequent diagnosis related to ALF were ascites (n = 87), jaundice (n = 84), mental disorders linked to alcohol consumption (n = 76), cirrhosis (n = 75), and acute renal failure (n = 64). Inpatient care was required for ALF patients for 88% and life-threatening conditions were observed in 13%. Death occurred within the ED in 0.7%.

Compared to patients with ALF, the remaining patients with hepatitis were older (mean age: 57.5 y versus 54.1 y, p<10-3), more often female (51% versus 40%, p<10-3) and had a less severe prognosis (inpatient care in 63% vs 88%, p<10-3; life-threatening conditions in 8% vs 13%, p<10-3).

Conclusions

This study shows the relevance of the data collected through the OSCOUR® network to describe clinical and epidemiological characteristics of patients with ALF in France between 2010 and 2012. Further studies based on hospital discharge data are necessary to better assess the outcome and also the burden of ALF. Perspectives of our work include the development of surveillance indicators for drug-induced hepatitis within the OSCOUR system.

Keywords

acute liver faliure; emergency departments; syndromic surveillance

References

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