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Original article

Incidence of all-cause adult community-acquired pneumonia in primary care settings in France☆,☆☆

Incidence des pneumonies aiguës communautaires prises en charge en médecine générale en France

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Abstract

Objectives. – To estimate the incidence of all-cause outpatient community-acquired pneumonia (CAP) in adults in France from a national prospective observational study of CAP management in general practice (CAPA).

Methods. – Patients aged over 18 years presenting with signs or symptoms indicative of CAP associated with recent onset of unilateral crackles on auscultation and/or a new opacity on chest X-ray were included in the CAPA study. An ancillary survey (AIMSIS) aiming at identifying family physicians' difficulties in including patients and at collecting their opinion on the use of an electronic case report form, determined the number of non-included eligible patients. A three-step analysis was then performed, including computation of the total number of eligible patients, adjustment for seasonality, and extrapolation to the French FP population using indirect standardization to adjust for differences in characteristics between CAPA FPs and French FPs.

Results. – Between September 2011 and July 2012, 267 (63%) CAPA investigators included 886 CAP patients. Most patients presented with mild CAP. The rates of hospitalization and one-month case fatality were 7% and 0.3%, respectively. Data from 336 (79%) AIMSIS investigators identified 641 additional patients and estimated at 234,023 the number of CAP patients per year (incidence of 4.7 per 1000 persons per year).

Conclusions. – Using a pragmatic case definition of CAP patients, this study estimated an incidence of 4.7 per 1000 persons per year that is in the lower half of the range of estimated incidences reported in primary care settings in industrialized countries.

Keywords: Community-acquired pneumonia; General practice

Résumé

Objectifs. – Estimer l'incidence des pneumonies aiguës communautaires (PAC) chez les adultes pris en charge en médecine générale en France à partir des données prospectives observationnelles de l'étude CAPA.

Méthode. – Ont été inclus dans l'étude CAPA, tous les patients de plus de 18 ans avec symptômes ou signes suggestifs de PAC, associés à un foyer unilatéral de râles crépitants et/ou une opacité radiologique récente. Une étude ancillaire sur l'avis des investigateurs à propos des inclusions et de la saisie informatique (AIMSIS) a déterminé le nombre de cas éligibles non-inclus. Une analyse en trois temps a été réalisée : calcul du nombre total de patients éligibles, ajustement selon la saisonnalité puis extrapolation à la population générale en ajustant sur les différences de caractéristiques entre les investigateurs de CAPA et les médecins généralistes français.

☆ The AIMSIS study was presented as a poster at the International Meeting on Emerging Diseases and Surveillance: IMED Vienna, in October 2014.
☆☆ The CAPA study was presented as a poster at the European Congress of Clinical Microbiology and Infectious Diseases (ECCMID) in April 2013 in Berlin, Germany. It was published in *npj Primary Care Respiratory Medicine* in March 2015 (Reference 9).

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Résultats. – De septembre 2011 à juillet 2012, 267 (63 %) investigateurs de CAPA ont inclus 886 patients, la plupart ayant une forme peu grave de PAC. Les taux d'hospitalisation et la létalité à un mois étaient respectivement de 7 % et de 0,3 %. Les données issues des 336 (79 %) investigateurs d'AIMSIS ont identifié 641 cas éligibles non-inclus et estimé à 234 023 le nombre total annuel de PAC (incidence de 4,7 pour 1000 adultes par an).

Conclusions. – Avec une définition pragmatique de PAC, cette étude montre une incidence annuelle de 4,7 pour 1000 adultes, qui se situe dans la moitié inférieure de l'intervalle des incidences des pays industrialisés.

Mots clés : Pneumonie communautaire ; Médecine générale

1. Introduction

Community-acquired pneumonia (CAP) is a major infectious disease in adults with a substantial burden in terms of hospitalization, death, and cost in industrialized countries. In the United States CAP patients aged ≥ 50 years accounted for 34.6% of patients hospitalized for infectious diseases in 2005. The mean length of stay for pneumonia was 5 days and the 30-day case fatality was highest (23%) among patients hospitalized for infectious diseases [1]. The highest incidence rates of CAP in adults are reported in patients aged ≥ 65 years, a population at high-risk of death due to pneumonia [1–3]. These rates might increase with population ageing leading to increased healthcare costs [1,2,4]. However, assessing the incidence rate of CAP in ambulatory settings remains difficult due to the very low frequency of consultations for suspected CAP in family physician (FP) practices (less than seven CAP per year per FP in France) [5]. Recent data on CAP outpatients from prospective cohort studies is lacking. Epidemiological data reported in the European primary care guideline for the management of CAP in adults is based on old studies [6]. In France, the latest ambulatory data is derived from Cegedim Strategic Data (CSD) [7], a French company specializing in healthcare market analysis [8].

To characterize CAP burden in the French adult population, a national prospective observational study of CAP management in general practice (CAPA study) [9] and an ancillary survey (AIMSIS) of the opinions and practices of participating FPs [10] were conducted from 2011 to 2012. The aim of this study was to estimate the incidence of all-cause outpatient CAP in adults in France, based on a post-hoc analysis of our two previous studies.

2. Method

2.1. Study periods and setting

The CAPA study was a prospective cohort study conducted between September 21, 2011 and July 2, 2012, in FP practices in France. Data was recorded in an electronic case report form (eCRF) until September 2, 2012 [9].

The AIMSIS survey was an ancillary survey among FPs participating in the CAPA study conducted between July 2, 2012 and August 10, 2012, and the data was recorded in a specific eCRF that allowed collecting FP motivation to participate, their difficulties in including patients, and their opinions and practices regarding the CAPA study [10].

2.2. FP sampling scheme

Four hundred and twenty-five FPs were asked to include all consecutive outpatients presenting with CAP older than 18 years. All investigators were part of a national FP network involved in clinical research and/or had a part-time FP teaching activity. They were recruited through a website linked to an eCRF. A stratified random sampling based on a multistage geographical cluster design at a departmental level was used to obtain a representative FP sample.

2.3. Definition of CAP and inclusion criteria

Inclusion criteria were being aged 18 years or over, having a recent onset of one or more signs suggestive of acute pneumonia such as fever > 38.5 °C, cough, chest pain, tachycardia > 100 beats/min, polypnea > 25 breaths/min, clinical evaluation of severity associated with at least one recent onset of unilateral crackles on auscultation and/or a new opacity on chest X-ray. Immuno-compromised patients and nursing home patients could be included. Patients hospitalized in the previous month were not included.

2.4. Data collection

The collected data included visit date, age, gender, lifestyle, history and clinical findings, investigations and their results, treatments, reasons for new consultation, duration of main symptoms, sick leave and its duration, hospitalization, and death. Patient data was anonymized. Patients were followed as part of their current management.

A positive chest radiography (X-ray) was defined by the presence of a focal alveolar opacity or multiple, mottled, peribronchial opacities or localized or diffuse interstitial opacities. A negative X-ray was defined by normal or non-specific radiographic findings and/or the presence of isolated pleural effusion.

Two clinical research associates ensured data quality throughout the study. They focused on record completeness and data collection from additional investigations. The monitoring team ensured that inclusion criteria were met, especially in patients without X-ray or with negative X-ray to rule out bronchitis or

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