



Original Article

## Professions and Working Conditions Associated With Community-Acquired Pneumonia<sup>☆</sup>



Jordi Almirall,<sup>a,\*</sup> Mateu Serra-Prat,<sup>b</sup> Ignasi Bolívar,<sup>c</sup> Elisabet Palomera,<sup>b</sup> Jordi Roig,<sup>d</sup> Ramon Boixeda,<sup>e</sup> Maria Bartolomé,<sup>f</sup> Mari de la Torre,<sup>a</sup> Olga Parra,<sup>g</sup> Antoni Torres<sup>h</sup>

<sup>a</sup> Unidad de Cuidados Intensivos, Hospital de Mataró, Mataró, Universitat Autònoma de Barcelona, CIBERES, Barcelona, Spain

<sup>b</sup> Unidad de Investigación, Consorci Sanitari del Maresme, CIBEREHD, Mataró, Barcelona, Spain

<sup>c</sup> Departamento de Epidemiología Clínica y Salud Pública, Institut de Recerca Biomèdica (IIB Sant Pau), Barcelona, Universitat Autònoma de Barcelona, Barcelona, Ciber de Epidemiología y Salud Pública (CIBERESP), Spain

<sup>d</sup> Servei de Pneumologia, Hospital Nostra Senyora de Meritxell, Escaldes-Engordany, Andorra

<sup>e</sup> Servei de Medicina Interna, Hospital de Mataró, Mataró, Barcelona, Spain

<sup>f</sup> ABS Mataró Centre, Consorci Sanitari del Maresme, Mataró, Barcelona, Spain

<sup>g</sup> Servei de Pneumologia, Hospital Universitari Sagrat Cor, Universitat de Barcelona, CIBERES, Barcelona, Spain

<sup>h</sup> Institut Clínic del Tòrax, Servei de Pneumologia, IDIBAPS, Hospital Clínic de Barcelona, CIBERES, Universitat de Barcelona, Barcelona, Spain

### ARTICLE INFO

#### Article history:

Received 13 August 2014

Accepted 24 October 2014

Available online 17 November 2015

#### Keywords:

Job  
Occupational exposure  
Community-acquired pneumonia  
Dust  
Temperature

### ABSTRACT

**Introduction:** Community-acquired pneumonia (CAP) is not considered a professional disease, and the effect of different occupations and working conditions on susceptibility to CAP is unknown. The aim of this study is to determine whether different jobs and certain working conditions are risk factors for CAP. **Methodology:** Over a 1-year period, all radiologically confirmed cases of CAP ( $n = 1336$ ) and age- and sex-matched controls ( $n = 1326$ ) were enrolled in a population-based case-control study. A questionnaire on CAP risk factors, including work-related questions, was administered to all participants during an in-person interview.

**Results:** The bivariate analysis showed that office work is a protective factor against CAP, while building work, contact with dust and sudden changes of temperature in the workplace were risk factors for CAP. The occupational factor disappeared when the multivariate analysis was adjusted for working conditions. Contact with dust (previous month) and sudden changes of temperature (previous 3 months) were risk factors for CAP, irrespective of the number of years spent working in these conditions, suggesting reversibility.

**Conclusion:** Some recent working conditions such as exposure to dust and sudden changes of temperature in the workplace are risk factors for CAP. Both factors are reversible and preventable.

© 2014 SEPAR. Published by Elsevier España, S.L.U. All rights reserved.

## Relación de las profesiones y las condiciones laborales con la neumonía adquirida en la comunidad

### RESUMEN

**Introducción:** La neumonía adquirida en la comunidad (NAC) no se considera una enfermedad profesional, por lo que se desconoce la influencia que puedan tener las distintas profesiones y condiciones laborales sobre el riesgo de desarrollar una NAC. El objetivo del estudio es conocer si las profesiones y determinadas condiciones laborales se pueden comportar como factores de riesgo de NAC.

**Metodología:** Estudio de casos ( $n = 1.336$ ) y controles ( $n = 1.326$ ) de base poblacional. Se estudiaron todos los casos de NAC con confirmación radiológica, diagnosticados en una base poblacional, durante un año. Los factores de riesgo de NAC, incluyendo las profesiones y las condiciones laborales actuales, fueron estudiados mediante entrevista individual.

#### Palabras clave:

Profesión  
Condiciones laborales  
Neumonía adquirida en la comunidad  
Polvo  
Temperatura

<sup>☆</sup> Please cite this article as: Almirall J, Serra-Prat M, Bolívar I, Palomera E, Roig J, Boixeda R, et al. Relación de las profesiones y las condiciones laborales con la neumonía adquirida en la comunidad. Arch Bronconeumol. 2015;51:627–631.

\* Corresponding author.

E-mail addresses: [jalmirall@cscdm.cat](mailto:jalmirall@cscdm.cat) (J. Almirall), [mserra@cscdm.cat](mailto:mserra@cscdm.cat) (M. Serra-Prat), [IBolibar@santpau.cat](mailto:IBolibar@santpau.cat) (I. Bolívar), [epalomera@cscdm.cat](mailto:epalomera@cscdm.cat) (E. Palomera), [averoig@mypic.ad](mailto:averoig@mypic.ad) (J. Roig), [rboixeda@cscdm.cat](mailto:rboixeda@cscdm.cat) (R. Boixeda), [mbartolome@cscdm.cat](mailto:mbartolome@cscdm.cat) (M. Bartolomé), [mctorre@cscdm.cat](mailto:mctorre@cscdm.cat) (M. de la Torre), [oparra@ub.edu](mailto:oparra@ub.edu) (O. Parra), [ATORRES@clinic.ub.es](mailto:ATORRES@clinic.ub.es) (A. Torres).

**Resultados:** El análisis bivariado mostró que trabajar como administrativo es un factor protector de NAC, mientras que trabajar en la construcción, estar expuesto al polvo y sufrir cambios bruscos de temperatura en el trabajo son factores de riesgo de NAC. El efecto de las profesiones desaparece cuando se ajusta por las condiciones laborales en el análisis multivariado. El contacto con polvo (último mes) y cambios bruscos de temperatura recientes (últimos 3 meses) son factores de riesgo de NAC sin que ello guarde relación con el número de años trabajados en estas condiciones, lo que sugiere un carácter reversible.

**Conclusión:** Algunas condiciones laborales recientes, como el contacto con polvo y cambios bruscos de temperatura, son factores de riesgo de NAC reversibles y potencialmente prevenibles.

© 2014 SEPAR. Publicado por Elsevier España, S.L.U. Todos los derechos reservados.

## Introduction

Community-acquired pneumonia (CAP) occurs at an incidence of between 1.6 and 13.5 cases/1000 inhabitants/year, depending on age. Hospitalization is necessary in 25–50% of cases, and the mortality rate is 3–24%; this has remained unchanged in recent years<sup>1</sup> despite the use of preventive measures mortality.<sup>2</sup> One of the best ways of limiting the impact of CAP is to act on modifiable risk factors.

Very few studies have analyzed professions and occupational exposure as risk factors for CAP. The possible impact of some types of occupational exposure on the respiratory system<sup>3</sup> has been studied in the setting of specific diseases, such as bronchitis, chronic obstructive pulmonary disease (COPD), bronchiolitis, asthma, and lung cancer. However, we are unaware of any study that has investigated the effect of occupational exposure on the probability of developing CAP. The aim of this study was to determine whether certain jobs and working conditions constitute risk factors for CAP among the general adult population.

## Materials and Methods

The Community-Acquired Pneumonia in Catalan Countries (PACAP) study is a population-based case-control study of the risk factors for CAP in 849,033 inhabitants over the age of 14, registered in 64 primary care centers in a large rural and urban district in the east of Spain. The study methodology has been published elsewhere.<sup>4</sup>

Any lower respiratory tract infection requiring antibiotic treatment that presented with new or previously unknown focal signs on physical examination and chest X-ray was considered as clinical suspicion of CAP.<sup>5</sup> All suspected CAPs were followed up with chest X-ray, according to clinical course, until complete resolution. Patients were excluded when suspected CAP was shown during monitoring to be another non-infectious respiratory disease. Patients diagnosed with active tuberculosis, suspected aspiration pneumonia, pneumonia acquired in residential care homes, and pneumonias with onset within 7 days of hospital discharge were also excluded. To ensure that all cases of CAP were identified, an active surveillance scheme was set up in primary care centers and hospitals, both public and private, in the study district, and in tertiary referral hospitals outside this area. The control group consisted of pairs matched for age ( $\pm 5$  years) and sex, selected randomly from the database of the primary care center that provided the cases.

Selected individuals completed a questionnaire on CAP risk factors in their home. If the patient could not respond directly due to mental illness, disease or death (in the case of a CAP patient), the questionnaire was completed by the caregiver or closest family member. The interviewers were doctors or nurses trained in interview techniques and the administration of the study questionnaire. Questions were divided into 3 sections: (a) habits and lifestyle; (b) chronic respiratory diseases and other clinical conditions; and (c) usual medication over the previous year. Information

was collected on current job, contacts with presumably toxic substances (at any time in their working life or in the last month), including smoke, gases, vapors, dust, organic or inorganic fibers, and contact with animals. Sudden changes in temperature associated with work in the last 3 months were recorded, e.g., entering cold chambers or working in kitchens or furnaces (see Table 1). The study was approved by the Clinical Research Ethics Committee of the Consorci Sanitari del Maresme, and all selected subjects gave their informed consent to participate.

The distribution of profession and exposure to the various study factors were compared between cases and controls using the Chi-squared test (or Fisher's exact test, if appropriate). Mean years worked under the different conditions were compared using the Mann-Whitney *U* test. To evaluate the effect of study factors on CAP, OR was estimated by logistical regression. A bivariate analysis and several multivariate models were conducted (one for each of the professions: office workers, construction, industry, teachers and farmers or stockmen) to adjust the effect of these professions for the effect of working conditions and other known CAP risk factors, such as asthma, chronic bronchial disease (including chronic bronchitis and COPD), and smoking habit. The level of statistical significance was set at  $p < 0.05$ .

## Results

A total of 1336 confirmed cases of CAP and 1326 controls were included. In total, 52.7% of the CAP cases were men, with a mean age  $\pm$  standard deviation of  $58.6 \pm 19.8$  years; 47.3% were women, with a mean age of  $54.6 \pm 20.7$  years. Table 1 shows the distribution of professions and working conditions between cases and controls. Office work is clearly a protective factor against CAP (OR = 0.75), while working in construction is a risk factor (OR = 1.60). No statistically significant association was found for any of the other professions studied. With regard to working conditions, a significant effect was found for contact with dust in the previous month (OR = 1.66), or contact with animals, excrement or viscera, also during the previous month (OR = 1.78), or exposure to sudden changes in temperature in the last 3 months (OR = 3.28). In contrast, no statistically significant effect was found when number of years working under these conditions was related with development of CAP.

Results of the multivariate models show that the occupational effect disappears after adjustment for working conditions, smoking habit, and chronic respiratory disease (Table 2). The effect of contact with dust and sudden changes of temperature, meanwhile, remains constant in all models, with a very stable OR, close to 1.5 in the first case and 3.25 in the second.

## Discussion

The results of this study show that while an individual's profession is not independently related with the development of CAP, some recent working conditions are. This is surprising in some cases – teachers, for example, are not at increased risk, despite spending

Download English Version:

<https://daneshyari.com/en/article/4205188>

Download Persian Version:

<https://daneshyari.com/article/4205188>

[Daneshyari.com](https://daneshyari.com)