



Socioeconomic profile of children hospitalized by community acquired pneumonia

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ABSTRACT. Acute respiratory infections are frequent and are the leading cause of infant morbidity and mortality. This study aimed to verify the socioeconomic profile of children hospitalized with community-acquired pneumonia. We realized a prospective study where social data were collected by direct interview conducted with parents and guardians and supplemented by information from medical records of children under five years of age hospitalized in wards at *Hospital Infantil Pequeno Príncipe* in the city of Curitiba. All children had clinical and radiological diagnosis of pneumonia. Twenty-two children were included in the study so. Eighteen children (82%) had family incomes below three minimum wages. In 36% (n = 8) of cases the mother worked outside the home. Living with household smokers was also observed in 36% of cases. Elementary education was found in 82% of mothers. Seventeen children (77%) were breastfed for less than six months. Nine children attended day care. Less than 14% (n = 3) of the children were daughters of teenage mothers. This study underscored the importance of socioeconomic factors on the morbidity of community pneumonia in childhood, being family income, maternal education and early weaning the factors most frequently rated among the interneers.

Keywords: pneumonia, child, socioeconomic factors.

Perfil socioeconômico de crianças hospitalizadas por pneumonia adquirida na comunidade

RESUMO. As infecções respiratórias agudas são frequentes e constituem a principal causa de morbimortalidade infantil. O objetivo deste estudo foi verificar o perfil socioeconômico das crianças hospitalizadas por pneumonia adquirida na comunidade. Foi realizado um estudo prospectivo em que foram levantados dados sociais pela entrevista direta realizada com pais e responsáveis de crianças com menos de cinco anos de idade e complementados por dados do prontuário médico, hospitalizadas em enfermarias no Hospital Infantil Pequeno Príncipe na cidade de Curitiba. Todas as crianças apresentavam diagnóstico clínico e radiológico de pneumonia. Vinte e duas crianças foram incluídas no estudo. Dezoito crianças (82%) apresentavam renda familiar menor que três salários mínimos. Em 36% (n = 8) dos casos a mãe trabalhava fora de casa. Convívio domiciliar com fumantes também foi observado em 36% dos casos. Ensino fundamental completo foi encontrado em 82% das mães. Dezesete crianças (77%) foram amamentadas por período menor que seis meses. Nove crianças frequentavam creche. Menos de 14% (n = 3) das crianças eram filhas de mães adolescentes. O estudo sinalizou a importância da influência dos fatores socioeconômicos na morbidade das pneumonias comunitárias na infância, com renda familiar, escolaridade materna e desmame precoce sendo os fatores de maior frequência entre os internados avaliados.

Palavras-chave: pneumonia, criança, fatores socioeconômicos.

Introduction

Acute respiratory infections (ARI) are relatively frequent and are the leading cause of infant morbidity and mortality, especially in developing countries. Children living in urban areas suffer 4.2 to 7.9 attacks year⁻¹, while those living in urban areas suffer 1.0 to 3.0 attacks year⁻¹ (NIOBEY et al., 1992).

In developed and developing countries, the overall incidence of ARI relative to pneumonia shows several differences as for frequency and severity (GOYA;

FERRARI, 2005). In developed countries 2% of children with ARI aged zero to five years are hospitalized, whereas in developing countries, this index reaches 10 to 20% (CAETANO et al., 2002).

According to Caetano et al. (2002), this affects more low-income families that delay seeking proper treatment, which worsens and increases the risk of hospitalization (RICCETTO et al., 2003).

In developing countries, five million children under the age of five years die each year from respiratory infections, 70% due to pneumonia. About

800 children die every hour due to a severe pneumonia, and of these 53% usually occurs in the post-neonatal period. (WHO et al., 1992).

Risk factors associated with pneumonia are: household crowding, exposure to passive smoking, poor vaccination, malnutrition, low birth weight (< 2,500 g), age below six months, early weaning, deficiency of micronutrients (iron, zinc, vitamin A), attendance at day care, and socioeconomic factors such as low maternal age, education of parents or guardian, low family income (CUNHA, 2002).

There are several etiologies of pneumonia, from bacteria, viruses, fungi, protozoa to chemical irritants, among others. In developing countries compared with most developed countries, evidences have pointed bacterial infections as the primary or secondary cause (GOYA; FERRARI, 2005).

Between 1985 and 1990, the pneumonia in Brazil was the leading cause of death in children aged below five years, with 772 deaths per 100,000 live births. This rate was far higher than in the United States, with 14.8 deaths per 100,000 live births (CHIESA et al., 2008).

In Brazil, respiratory diseases are the second cause of death in children under one year of age, especially in south and southeast regions, with bacterial pneumonia being the most frequent (DIRETRIZES, 2007).

Given the great importance of respiratory infections in infants and its impact in public health, this study aimed to verify socioeconomic factors of children under five years of age hospitalized for community acquired pneumonia.

Material and methods

This is a prospective study where socioeconomic data were collected by direct interview conducted with parents and guardians and supplemented by information from medical records of children under five years of age, hospitalized at *Hospital Infantil Pequeno Príncipe* in the city of Curitiba, Paraná State. The sample was made up by 50 children with clinical and radiological diagnosis of pneumonia and hospitalized in wards.

Patient with previous diagnosis or suspicious of serious underlying disease, such as immunodeficiency, cystic fibrosis, cancer, Down syndrome, as well as those who refused to participate in the study were not included in the sampling.

The study was approved by the Ethics Committee of the Pontifícia Universidade Católica do Paraná and of the *Hospital Infantil Pequeno Príncipe*. Data collection was performed by applying a pre-designed questionnaire (Appendix I) to the parents or guardians of the patient, containing questions relative to the socioeconomic status of the patient and family, after

signing the consent form. The questionnaire was applied from January to June 2010 by five researchers of the study at cited hospital, and the review of medical records was carried out in July and August. Data sought were confirmation of diagnosis of pneumonia and confirmation of the absence of underlying disease. The patients were identified by initial letters, and information was kept under confidentiality. Data of the questionnaire (Appendix I) were classified and tabulated, being the results presented as percentage.

Data were statistically described using the software 'Statistica'. The analytical statistics was not possible owing the small size of the final sample.

In this study there was no material collection neither uses of new drugs in the patients.

Results

It was applied and responded 50 questionnaires, but 28 (56%) were excluded from analysis due to incomplete data at medical records and exclusion criteria originally proposed.

Twenty-two children were included in this study. Eighteen children (82%) had family income below three minimum wages. In 36% (n = 8) of cases the mother worked outside the home. Living with household smokers was also observed in 36% of cases. Complete elementary education, equivalent to eight or more years of schooling, was found in 82% of mothers. Seventeen children (77%) were breastfed for less than six months. Nine children attended day care. Less than 14% (n = 3) were children of teenage mothers.

The Table 1 lists the results of frequency of socioeconomic factors.

Table 1. Frequency of socioeconomic factors.

Factors	N	Percentage (%)
Household smokers	8	36
Elementary education \geq 8 years	18	82
Family incomes < 3 minimum wages	18	82
Breastfeeding < 6 months	17	77
Children attended day care	9	41
Gaughters of teenage mothers	3	14
Mothers worked outside the home	8	36

N = number of children.

The Figure 1 illustrates the most relevant results of guardians of children hospitalized in wards.

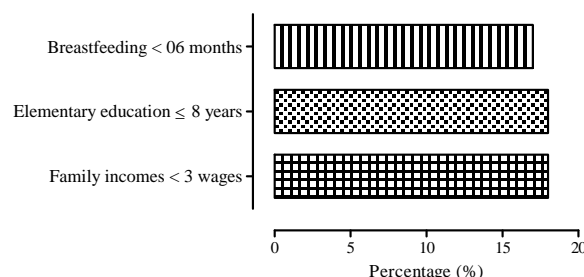


Figure 1. Relevant results of guardians.

Discussion

Acute respiratory infections are among the leading causes of morbidity and mortality in developing countries.

Somewhat variable, in different studies both mortality and risk of hospitalization for pneumonia have been associated with education, maternal age, and other socioeconomic conditions (WHO et al., 1992).

Reichenheim and Harpham (1989), in a study with children of a slum of Rio de Janeiro, found a greater number of respiratory infections that required hospitalization among those with family income less than one and a half minimum wage, however these authors did not found association of these infections with maternal education (WHO et al., 1992). In a descriptive and prospective study, Riccetto et al. (2003), observed no significant difference in the frequency of complications between groups of maternal education and family income per capita.

In our population, 82% of patients had family income below three minimum wages, which is statistically representative, corroborating the study of Reichenheim and Harpham (1989).

Regarding the maternal education, 82% (n = 18) of mothers presented at least eight years of education. According to Caetano et al. (2002), the hospitalization of children had been related to the higher level of maternal education, since for this author supposedly mothers with higher level of education would have greater access to the different types of health service and greater awareness of the disease severity.

In this study, 36% of mothers worked outside the home and 41% of children attended day care. These data agree with the study of Fonseca et al. (1996), where these variables have been strongly related to the increased risk of pneumonia. In a study of Goya and Ferrari (2005), in the city of Fortaleza, researchers have highlighted that attendance at day care was the major factor associated with pneumonia, with a relative risk of 5.22.

Children with less than one year age, with smoking parents, have twice the risk of pneumonia than those whose parents do not smoke, besides presenting increased risk of hospitalization (GOYA; FERRARI, 2005). In the study of Amaral (2001), children exposed to secondhand smoke had 28% more ARI, with significant risk of prevalence. In our study, 36% of patients lived with household smokers.

In accordance with studies of Niobey et al. (1992) and Amaral (2001), a greater risk of infection was registered in patients with lack of breastfeeding, with 32% more chances of developing ARI. A high frequency was also observed herein where 77% of children breastfed less than six months, but a value much higher was found in the group of highest severity (100%).

The literature shows that the maternal age is inversely associated with pneumonia (PRIETSCHE et al., 2002, 2008). Nevertheless, studies of Cesar et al. (1997) and Riccetto et al. (2003) have demonstrated no statistical significance when related the maternal age with pneumonia. This data agrees with our study, in which less than 14% of mothers were teenagers.

Conclusion

Despite the small sample, this study emphasized the importance of the influence of socioeconomic factors on the morbidity of community acquired pneumonia. Among descriptive data, the family income less than three minimum wage as well as the maternal education equal to or higher than eight years and breastfeeding over six months presented higher frequency among evaluated patients.

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Appendix I

Questionnaire.

Current data of the child:

- 1 How old is the child (months)?
 - 2 Does the child attend day care?
 - 3 What is the weight and height (malnutrition)? History
 - 4 The child was born with how many weeks?
 - 5 Vaginal or cesarean delivery?
 - 6 What was the weight at birth?
 - 7 How many prenatal visits did you have?
 - 8 Has the child been followed up along the first year of life? Regularly, occasionally (only when sick) or had no follow-up?
 - 9 Has the child been breastfed? How long?
 - 10 Is the vaccination schedule complete?
 - 11 Has the child been hospitalized before? Why?
-

Data of parents or guardian:

- 12 How old is the mother?
 - 13 What is the marital status of the mother?
 - 14 What is the education level of the mother or guardian?
 - 15 What is the family income?
 - 16 Does the mother or guardian work outside home?
 - 17 Has any house hold smoker?
-

Data regarding the house hold:

- 18 How many rooms?
 - 19 How many people?
 - 20 What is the type of construction (masonry, wood, other)?
 - 21 What is the type of coverage (slab, ceiling, tiles, other)?
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