



ORIGINAL ARTICLE

Prevalence and risk factors associated with wheezing in the first year of life[☆]

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KEYWORDS

Prevalence;
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Abstract

Objective: to investigate the prevalence and risk factors associated with wheezing in infants in the first year of life.

Methods: this was a cross-sectional study, in which a validated questionnaire (Estudio Internacional de Sibilancias en Lactantes - International Study of Wheezing in Infants - EISL) was applied to parents of infants aged between 12 and 15 months treated in 26 of 85 primary health care units in the period between 2006 and 2007. The dependent variable, wheezing, was defined using the following standards: occasional (up to two episodes of wheezing) and recurrent (three or more episodes of wheezing). The independent variables were shown using frequency distribution to compare the groups. Measures of association were based on odds ratio (OR) with a confidence interval of 95% (95% CI), using bivariate analysis, followed by multivariate analysis (adjusted OR [aOR]).

Results: a total of 1,029 (37.7%) infants had wheezing episodes in the first 12 months of life; of these, 16.2% had recurrent wheezing. Risk factors for wheezing were family history of asthma (OR = 2.12; 95% CI: 1.76-2.54) and six or more episodes of colds (OR = 2.38; 95% CI: 1.91-2.97) and pneumonia (OR = 3.02; 95% CI: 2.43-3.76). For recurrent wheezing, risk factors were: familial asthma (aOR = 1.73; 95% CI: 1.22-2.46); early onset wheezing (aOR = 1.83; 95% CI: 1.75-3.75); nocturnal symptoms (aOR = 2.56; 95% CI: 1.75-3.75), and more than six colds (aOR = 2.07; 95% CI 1.43- .00).

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PALAVRAS-CHAVE

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Conclusion: the main risk factors associated with wheezing in Fortaleza were respiratory infections and family history of asthma. Knowing the risk factors for this disease should be a priority for public health, in order to develop control and treatment strategies.

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Prevalência e fatores de risco associados à sibilância no primeiro ano de vida**Resumo**

Objetivo: verificar a prevalência e fatores de risco associados à sibilância em lactentes no primeiro ano de vida.

Métodos: estudo transversal, onde foi aplicado o questionário padronizado e validado (*Estudio Internacional de Sibilancias en Lactantes-EISL*) aos pais de lactentes com idade entre 12 e 15 meses que procuraram 26 das 85 unidades de atenção básica, no período 2006 a 2007. A variável dependente, sibilância, foi definida utilizando os seguintes padrões: ocasional (até dois episódios de sibilância) e recorrente (três ou mais episódios). As variáveis independentes foram apresentadas usando distribuição de frequências, utilizadas para comparar os grupos. As medidas de associações foram baseadas em razão de chances (*odds ratio-OR*), com intervalo de confiança de 95% (IC95%), com análise bivariada, seguida de análise multivariada (OR ajustada). **Resultados:** um total de 1.029 (37,7%) lactentes apresentou sibilância nos primeiros 12 meses de vida e destes, 16,2% tiveram sibilância recorrente. Os principais fatores de risco associados à sibilância foram: história familiar de asma (ORa = 2,12; IC95%: 1,76-2,54); seis ou mais episódios de resfriado (ORa = 2,38; IC95%: 1,91-2,97) e pneumonia (ORa = 3,02; IC95%: 2,43-3,76) e sibilância recorrente foram: asma na família (ORa = 1,73; IC95%: 1,22-2,46); início precoce de sibilância (ORa = 1,83; IC95%: 1,75-3,75); sintomas noturnos (ORa = 2,56; IC95%: 1,75-3,75); mais de 6 resfriados (ORa = 2,07; IC95%: 1,43-3,00).

Conclusão: os principais fatores de risco associados à sibilância foram as infecções respiratórias e história de asma na família. Conhecer os fatores de risco dessa enfermidade deve ser uma prioridade para a saúde pública, que poderá desenvolver estratégias de controle e tratamento.

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Introduction

Wheezing is a very common symptom in infants,¹ which is usually accountable for a high demand of medical consultations and emergency care services, with relatively high rates of hospitalization. Along with acute respiratory infections, it plays an important role in infant mortality.² In Latin America, approximately 100,000 children die in the first year of life due to acute respiratory infection, and a significant proportion of them have a history of wheezing.³ In Brazil, data from the Ministry of Health show that around 35% of infant hospitalizations in the first year of life in Brazil are due to respiratory diseases.⁴

Nevertheless, the real extent of this problem remains unknown, as well as how many of these infants are actually asthmatic patients.⁵ The factors that establish the start, evolution, and prognosis of wheezing in infants have not yet been well defined. As it occurs in older children, it is likely that individual genetic and immunological patterns, associated with environmental factors, are responsible for most of wheezing phenotypes in childhood.^{6,7} Most studies indicate a multifactorial etiology in the pathogenesis of wheezing in the first year of life, in addition to the close association with respiratory infections. However, how these different elements relate to each other is still the subject of much controversy.^{8,9}

The International Study of Wheezing in Infants (*Estudio Internacional de Sibilancias en Lactantes [EISL]*) was developed in order to determine the prevalence and risk factors associated with wheezing in infants in the first year of life.¹⁰ The EISL project evaluated the risk factors associated with wheezing in the first year of life in children from Latin America, Spain, and the Netherlands. Data showed a large variation in the prevalence and severity of wheezing at the centers, but with a tendency of higher prevalence and severity in Latin American children. The present study is part of the EISL project - phase 1.

This study aimed to determine the prevalence and risk factors associated with wheezing in infants in the first year of life, living in Fortaleza, Brazil, using the EISL protocol.

Methods

The present study was conducted in the city of Fortaleza, capital of the state of Ceará, Northeastern Brazil, as part of the EISL project - phase 1.¹⁰ The EISL is a cross-sectional, multicenter, international study with descriptive and analytical elements, developed to assess the prevalence, severity, and other characteristics of wheezing in infants in the first year of life from Latin America, Spain, and the Netherlands. It was designed to determine the association of wheezing

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