Abstract

Background: The effects of particulate matter (PM10) on respiratory health are a public health interest because of the high risk of disease and death in the exposed population, more so when it comes to children. The goal was to identify the relationship between concentrations of PM10 and presence of respiratory symptoms and impaired lung function in children aged 6-14 years in the city of Santa Marta.

Method: A cross sectional study was developed. The sample consisted of 305 randomly selected school children enrolled in schools in the area. Two surveys were carried out: (i) the survey of the International Study of Asthma Allergies in Childhood (ISAAC), to identify symptoms of allergic rhinitis and asthma, and (ii) the survey to identify co-variates in the home environment. Spirometry was performed to assess lung function. To characterize exposure defined four areas of the city where they were located from OMNI low volume samplers to measure PM10 concentrations. EpiInfo 3.5.3 was used for bivariate analysis (Chi2) and multivariate (logistic regression) and epidemiological measures (OR). Results: The prevalence of respiratory symptoms in the study population was 39.3%. Living in exposed areas increases the risk of suffer respiratory symptoms in upper tract (ORa=2.19 p=0.0015) and having cats (ORa=1.79 p=0.0389). Conclusions: In children aged 6-14 years exposed to PM10 concentrations higher than 70g/m3 the risk of upper respiratory tract symptoms increases and lung function is altered.

Keywords

Particulate matter, Respiratory tract diseases, Spirometry, Air pollution, Child.