ESTIMATION OF THE OVERALL EFFECT OF PM10 ON HOSPITAL ADMISSIONS FOR RESPIRATORY DISEASES IN NINE CITIES IN THE METROPOLITAN REGION OF SÃO PAULO (MRSP), BRAZIL

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Background and aims: The MRSP has 39 municipalities in an area of 7.9 km2 and a population of 19.7 million inhabitants. This area has 22 air monitoring stations of air quality that measures PM10 across 9 cities. In these cities was conducted time series study to evaluate the impact of PM10 on hospital admissions for respiratory diseases and meta-analysis was performed for overall risk assessment for PM10 in the region to estimate the global risk.

Methods: Cities specific analyses were carried out using a common framework. The library ARES developed for R application was used to analyze the relation between admissions for respiratory illnesses and PM10. This analysis was done in generalized additive models Poisson regression. The models accounted for seasonality, secular trends and climate in the analysis of each city. City specific estimates were summarized by means of a meta-analysis.

Results: It was found positive and significant association between respiratory disease and PM10 in seven cities. The random effect estimates for respiratory disease and PM10 for the nine cities was 1.33% [95%IC 0.53; 2.14] change for 10 µg/m³.

Conclusions: It was found overall significant risk for respiratory diseases and PM10 in the selected municipalities of the MRSP.