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The impact of short term atmospheric particulate matter exposure on COPD exacerbations**Michał Zieliński, Aneta Ciślak, Piotr Rozentryt, Michał Skrzypek, Mariusz Gąsior and Dariusz Ziara**
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Aim: The aim of this study was to examine the association between particulate matter concentration and COPD exacerbations. Exposure was evaluated based on atmospheric concentrations in a week preceding hospital admission.

Materials & Methods: Data about the COPD exacerbations were obtained from Śląska Baza Sercowo-Naczyniowa database, which provides information concerning cardiovascular diseases in Silesia region population. It covers 616413 patients observed from 2006 to 2014. 12889 patients with ICD-10 J44 main diagnosis and exclusion of cardiovascular cause of symptoms were included in the study. Atmospheric particulate matter data was acquired from Śląski Monitoring Powietrza database which covers information about air pollution in Silesia region. Particulate matter exposure was approximated using moving average of atmospheric concentrations of particulate matter with a mean aerodynamic diameter of 2.5 µm (PM_{2.5}) and 10 µm (PM₁₀). Statistical analysis was performed using generalized linear model with logarithmic link function. Temperature, humidity, wind velocity, atmospheric pressure, season were considered as confounding factors. Poisson distribution was assumed for the dependent variable. Significance level of 0.05 was assumed.

Results: The COPD exacerbations were not dependent on PM₁₀ and PM_{2.5} concentrations ($p > 0.05$). Rise of statistical significance with the observation period was observed for PM_{2.5}, though it never crossed set level of 0.05.

Conclusion: Short term exposure to particulate matter does not affect COPD exacerbations irrespectively of mean aerodynamic diameter. Results justify further study with long term exposure analysis.

Biography

Michał Zieliński is a young researcher working in Department of Lung Diseases and Tuberculosis, Medical University of Silesia under the guidance of Professor Dariusz Ziara. His area of specialization is Respiratory Diseases. Main points of his research are: Association between environmental factors and respiratory diseases course, sleep disorders (particularly obturative sleep apnea) and their connection with lifestyle, objective quantification of cough.

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