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Title: Impact of traffic-related air pollutants on the reduction of spirometric parameters. Warsaw study

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Body: Background In urban areas the direct proximity of busy main roads is characterized by higher levels of air pollutants compared to areas remote from busy roads. As a result inhabitants living close to the busiest roads are likely to be more exposed to the harmful influence of traffic-related air pollutants (TRAP) than those living in other areas. Material 4985 persons (urban and rural inhabitants) were investigated in a study made in 2008-2011 in Warsaw. Pulmonary function tests were completed (Easy One spirometer) and occurrence of respiratory system diseases symptoms, allergies, smoking, etc. were proved. Simultaneously traffic density and TRAP concentrations were measured. Association between place of living, air pollutants exposure and obstruction was explored by generalized regression models. Results TRAP concentrations were statistically significant higher ($p<0,05$) in the vicinity of roads comparing to rural areas. Significant association between living close to busy roads and risk of obstruction was found. The risk of obstruction was 4,25 times higher (95%CI: 2,29-7,89) comparing all non-smoking inhabitants of the city and rural areas. Statistically significant differences ($p<0,05$) in the distribution of FEV1, FEV1/FVC and MEF50 has been found between the groups. Amid smokers the differences were insignificant. Conclusion High TRAP concentrations in the proximity of main roads are one of the significant reasons of airways obstruction. The risk of flow limitation highly depends on place of living, particularly among non-smokers. The results of the study prove a significant role of air pollutants in development of diseases causing bronchial stricture (mainly COPD).