Abstract

The aim of the study is to find the prevalence rate of TB cases with ambient air quality and changing climate. We have investigated the effect of ambient air pollution and changing climate on pulmonary Tuberculosis cases. The association has to be found between PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, O_3 and meteorological data of temperature, humidity and precipitation. This time-series analysis was conducted in Lahore, Pakistan. The data of TB was collected from Punjab Tuberculosis Control Program. The data of pollutants were collected from Punjab Environmental Protection Department and the meteorological data was collected from Pakistan Meteorological Department. The total of 153081 Tuberculosis cases was observed. Spearman's Correlation was used to find relation between pollutants. Poisson regression was used to find association between pollutants, changing climate and Tuberculosis cases. In overall analysis, the results were quite significant. There was a statistically significant positive association observed between PM_{10}, $PM_{2.5}$, NO_2, CO, O_3, temperature and humidity with Tuberculosis cases. The increase in Tuberculosis cases was observed mostly in summers. The most of the increase was observed in males and people with age group more than 35 years. The most of the Tuberculosis cases observed were the bacterial negative cases which were the clinically diagnosed cases. From Poisson regression it is estimated that $PM_{2.5}$, PM_{10}, NO_2, CO and O_3 shows significant relation as .997(.997-.998), 1.000(.999-1.000), 1.002(1.002-1.003), 1.002 (1.002-1.003) and 1.001(1.001-1.001) respectively. SO_2 and precipitation shows a decreasing trend. So, it is concluded that the increase in the Tuberculosis cases were greatly affected by the ambient air pollution and changing climate. There should be further investigation done in this regard so that we can eliminate Tuberculosis in future before 2030 according to World Health Organization. (Ctrl)