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The Impact of Total Dust (LGS) and Mineral Dust (PM 10) in Cardio Vascular and Respiratory System, in Albania: A Longitudinal Study

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Abstract : Aim: This study aims at evaluating the impact of total dust (LGS) and mineral dust (PM10), in the cardio vascular and respiratory systems. Also proving that these air polluters are the cause of several diseases, such as bronchopneumonia, pneumonia, bronchitis, angina pectoris and cardiac insufficiency. Material and Method: The study is concentrated in the cities of Fier and Vlora. This is a clinic-epidemiological study conducted during the time period 2014-2019. Some of the data of LGS and PM10 were obtained from the database of the Institute of Public Health. The formula to measure the mean value of LGS and PM10 is $\Delta X=X\ (mean)-X_i$. Results: Based on the calculations made, we noticed that: The mean value of LGS in the city of Fieri was 227,33, while the mean value of LGS in the city of Vlora was 177,4. Whereas, the mean value of PM10 in the city of Fieri was 105.5 and the mean value of PM10 in the city of Vlore was 77.5. According to, our statistics the values of LGS were 1.2 times higher in Fier than in Vlora and the PM10 values were 1.36 times higher in Fier than in Vlora. Based on the data, in the city of Fier, the incidence of the bronchopneumonia was 56.53 sick patients/1000 inhabitants, but in Vlora, it was 22 sick patients/1000 inhabitants, so the number of the sick patients was 2.5 times higher in the city of Fieri compared with Vlora city, (P=0.001). The number of the patients with bronchitis, in the city of Fier, was 18 patients/1000 inhabitants, whereas, in Vlora, it was 9 patients/1000 inhabitants, (P=0.005). Based on the data, 8 patients/1000 inhabitants in the city of Fier, suffered from the pneumonia disease, while in Vlora city, were 4 patients/1000 inhabitants, (P=0.005). Another disease taken in consideration was angina pectoris. This study can claim that in the city of Fier, 9.5 patients/1000 inhabitants suffered from this disease, while in Vlora city, were only 4 patients /1000 inhabitants, (P=0.001). Findings of the present study proved that 3.7 patients/1000 inhabitants in the city of Fieri, had cardiac insufficiency, whereas in the city of Vlora, were 1.8 patients/1000 inhabitants, (P=0.05). Conclusions: LGS and PM10 have an influential impact on the cardio vascular and respiratory system; that's why their levels should be kept under control. The pollution levels are 1.2 and 1.4 times higher in Fier than in Vlora; also the incidences of the diseases are 2 times higher in Fier than in Vlora. Recommendations: In order to prevent the cardio vascular and respiratory diseases, we should avoid places where pollution is higher than the norm. This can be achieved by frequenting places where the air pollution is lower, such as parks, gardens, top floors, etc.

Keywords : impact of total dust, LGS, mineral dust, PM 10, cardio vascular pathologies, respiratory disease
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