

## The Association between Saharran Dust and Emergency Department Admission and Hospitalization in Gaziantep, Turkey

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**Abstract :** Objective: In the last two decades there is a strong scientific interest regarding the role of aerosols for the Earth's climate and associated changes. Aerosol particles are very important to the Earth-atmosphere climate system playing a crucial role in cloud and precipitation processes, air quality and climate. Here, we evaluated the association between saharan dust and emergency department admission, hospitalization, and mortality. Method: The records of admission to emergency department of Gaziantep University and the dust storms of 31 months were studied. Patients admitted to ED at dust storm with chronic obstructive lung disease (COLD), asthma bronchiale (AB), serebrovascular events (SVE), acute myocardial infarction (AMI), stabile and unabile angina pectoris (SAAP andUSAP); and the days with and without dust storms were included. The study was realized from March 2010 to October 2012. The admission of three days before storm (group 1), during storm days (group 2) and three days after storm (group 3) were determined. The mean level of dust PM10 particulate was calculated, and the results were compared. Results: 5864 patients with chronic obstructive lung disease, asthma bronchiale, serebrovascular events, acute myocardial infarction, stabile and unabile angyina pectoris admitted during the days with and without dust storms. 28 dust storms occurred during 31 months. The totaliy of storms continued 78 days. Of admissions, 35.5% (n=2075) were in group1, 29.8% (n=1746) in group 2, and 34.8% (n=2043) were in group 3. The mean of PM10 for groups (group 1, 2 and 3) were 78.53 mg/m<sup>3</sup> (range 19-276) particulate, 108.7 mg/m<sup>3</sup> (range 34-631) particulate, and 60.9 mg/m<sup>3</sup> (range 17-160) particulate respectively. The mean admission per a day for groups were 24.86, 22.55, and 24.50 respectively. The mortality was 12 in group 1, 12 in group 2, and 17 in grou 3. The hospitalization ratio for groups were 0.24, 0.27, and 0.27 respectively. Conclusion: However, the mean level of PM10 particulate for groups 2 (in dust storm days) is significantly higher (p=0.001) than the days before (group 1) and after (group 3) dust storms, the mean admissions/day, hostilalization and mortality related to deseases (COLD, AB, SVE, AMI, SAAP andUSA) for group 2 is lower than the group 1 and group 3.

**Keywords :** Saharran dust, PM10 particulate, emergency department admission, mortality

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