

RESEARCH ARTICLE

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The influence of foehn winds on the incidence of severe injuries in southern Bavaria – an analysis of the TraumaRegister DGU®

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Abstract

Background: Foehn describes a wind which occurs in areas with close proximity to mountains. The presence of foehn wind is associated with worsening health conditions.

This study analyzes the correlation between a foehn typical circulation and the incidence for suffering a severe trauma.

Methods: This is a retrospective, multicentre observational register study. The years from 2013 to 2016 were analyzed for the presence of foehn winds. A logistic regression analysis with the number of daily admitted trauma patients as the primary target value was performed in dependence of foehn winds.

Southern Bavaria is a typical foehn wind region. Individuals were treated in 37 hospitals of Southern Bavaria which participate in the TraumaRegister DGU®, an international register that includes all severe trauma patients, mainly in Germany.

We analyzed patients with an Injury Severity Score (ISS) of at least nine with admission to intensive care units or prior death in the emergency room.

Results: 6215 patients were enrolled in this study. A foehn-typical circulation was present on 65 days (4.5%). 301 patients (5%) suffered a trauma with an ISS ≥ 9 on a foehn day. The mean ISS was 20.2 (9–75). On average, 4.3 patients (0–15 patients) were admitted on a daily basis due to a severe trauma.

The multivariate regression analysis revealed a daily increase of 0.87 individuals ($p = 0.004$; 95% CI 0.23–1.47) on foehn days. During spring 1.07 patients ($p < 0.001$; 95% CI 0.72–1.42), in summer 1.98 patients ($p < 0.001$; 95% CI 1.63–2.32), in fall 0.63 ($p < 0.001$; 95% CI 0.28–0.97) and on Saturdays, 0.59 patients ($p < 0.001$; 95% CI 0.24–0.93) were additionally admitted due to severe trauma.

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