

The Impact of Forest Fires in 2105 on Patients with Respiratory Disease in Singapore.

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Introduction : Singapore experienced markedly increased air pollution for two months in 2015 as a result of forest fires. We hypothesized that this adversely affected patients with respiratory disease.

Aim : to evaluate the impact of forest fires on respiratory disease in patients who visited a respiratory clinic during this period, and if asthmatic, to analyze their Asthma Control Test (ACT) and spirometry results.

Method: data was collected prospectively from patients over two months : diagnoses, ACT score (if asthmatic) and changes, medication (including oral/inhaled steroids, nebulisation), hospitalisation and spirometry were recorded.

Results : 109 clinic visits (74 patients) were recorded. Demographics: 26 Male, mean age : 48 years (range 16-93 years, SD 12.3 years). Diseases (n): asthma (51) (including 1 Churg Strauss), acute bronchitis (4), post nasal drip and sinusitis (5), bronchiectasis (3), COPD (2), pneumonia (2), others (7). Out of 74 patients, 5 (6.8%) needed hospitalisation. 7 (9.5%) needed nebulisation. Asthma: 5 (6.8%) needed oral steroids. 24 (47%) required increased medication.

Out of 51 asthmatics, 37 (72.5%) answered the ACT with comparative readings. 19 (58%) ACT scores decreased (mean 7.5, SD 4.31), 10 (30%,) ACT scores increased as a result of therapy (mean 8.3 , SD 5.27), 4 (12%) ACT scores remained the same.

Spirometry of asthma patients: There was **no statistical difference** in the FEV1 ($p=0.4761$, 95% CI -17.14-8.21) , FEV1/FVC ratio ($p=0.4355$, 95% CI -6.79-3.01) between the two ACT increase and decrease groups.

Conclusion : forest fires significantly impacted the health of patients with respiratory disease in particular asthmatics, irregardless of spirometry.