Vitamin D Insufficiency In Adult Asthma Is Associated With Asthma Severity And Control

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Rationale: Vitamin D has several effects on the innate and adaptive immune system. Preliminary data in asthmatic children suggest that low vitamin D is associated with poor asthma control, reduced lung function, increased bronchial hyperresponsiveness and increased medication intake. The role of vitamin D insufficiency in adult asthma patients has not been extensively investigated.
Methods: 25-Hydroxyvitamin D was measured in 264 adult patients with asthma (45.2±14.0 yrs., 41.7% männl., FEV1 75.3±23.9%, 74 intermittent or mild, 44 moderate, 146 severe asthma) and correlated with clinical parameters of asthma control.
Results: Serum levels of vitamin D were significantly related to asthma severity (mean±SEM: intermittent: 32.8±2.8 ng/ml, mild: 26.9±1.5 ng/ml, moderate: 26.4±1.6, severe: 24.4±1.0, p=0.028) and asthma control (controlled: 29.4±1.8, partly controlled 26.3±1.1, uncontrolled: 24.4±1.1 ng/ml, p=0.045). Frequency of vitamin D insufficiency (vitamin D < 30 ng/ml) was significantly higher in patients with severe or uncontrolled asthma and was associated with a lower FEV1 (Vit D < 30 vs. ≥ 30 ng/ml mean±SEM: 2.4±0.1 L vs. 2.7±0.1 L, p=0.006), a higher BMI (28.9±0.7 vs. 25.2±0.4, p<0.001), higher levels of exhaled NO (53±7 ppb vs. 33±4 ppb, p=0.023) and the use of oral corticosteroids (patients with oral steroids 31.1% vs. 20.0%, p=0.073).
Conclusion: Levels of serum vitamin D were associated with clinical parameters of asthma severity and control. Frequency of vitamin D insufficiency was highest in patients with severe, uncontrolled asthma, supporting the hypothesis that improving suboptimal vitamin D status might be effective in prevention and treatment of asthma.

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