Does vitamin D deficiency worsen the hospital outcome in patients with acute exacerbation of chronic obstructive pulmonary disease?

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Abstract:

Background There are limited data about the hospital outcome in hospitalized patients diagnosed as chronic obstructive pulmonary disease (COPD) with concomitant deficiency of vitamin D. Objectives To assess the level of serum 25-hydroxyvitamin D in patients with severe exacerbation of COPD and to find if there is any correlation between vitamin D and clinical, functional parameters, as well as survival, days of hospital stay, and need for ICU admission. Patients and methods In this case-control study, 60 patients with acute exacerbation COPD requiring hospital admission were recruited and 24 healthy controls. Chest radiography, spirometry, arterial blood gases, 6min walking distance, modified Medical Research Council dyspnea scale, and St George Respiratory Questionnaire were assessed. Serum 25-hydroxyvitamin D level was measured by enzyme-linked immunosorbent assay. Results About 90% COPD patients had vitamin D deficiency. Serum vitamin D levels were statistically significantly lower in COPD with and without comorbidities when compared with normal controls (P<0.05). No significant correlation was found between serum 25-hydroxyvitamin D and survival; days of hospital stay or need for mechanical ventilation. As well, no significant correlation between vitamin D and forced expiratory volume in the 1s %, 6min walking distance, modified Medical Research Council, or St George Respiratory Questionnaire scores was found. Conclusion Vitamin D deficiency is found in most COPD patients. However, in patients suffering from severe exacerbation, the presence of low vitamin D levels did not have any effect on survival, days of hospital stay, or need for mechanical ventilation.

Keywords:

acute exacerbation chronic obstructive pulmonary disease, days of hospital stay, hospital outcome, need for mechanical ventilation, vitamin D deficiency

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