

Respiratory infections

Vitamin D deficiency as a risk factor for tuberculosis

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Vitamin D has been known to be essential for prevention and treatment of rickets in children and osteomalacia and osteoporosis in adults. Recently, there has been increasing evidence for other important pleiotropic effects of vitamin D, e. g. regulation of immune response and inflammation, obesity, musculoskeletal development, growth and development. For example, low vitamin D plasma concentrations were found in patients with cardiovascular disease, cancer, type 2 diabetes mellitus, airway inflammation and acute respiratory infection indicating that patients with low vitamin D concentrations are at risk for these diseases. In our literature review we searched in PUBMED for publications regarding vitamin D deficiency and tuberculosis. A major number of studies demonstrated an inversed relation between vitamin D plasma concentration and risk for different types of tuberculosis and that patients with manifest vitamin D deficiency had an increased risk for these infections. A number of studies also reported an obvious link between the seasonality of low plasma vitamin D concentration and a high incidence of tuberculosis infection (or reactivation of tuberculosis infection) in winter. Furthermore, a number of studies analysed the effect of vitamin D supplementation on prevention and treatment of tuberculosis. However, guidelines for preventive supplementation of vitamin D are still missing and the effect of vitamin D supplementation on treatment outcome is still subject of debate. In summary, measurement of plasma vitamin D concentration and supplementation should be performed at least in patients at risk, e. g. elderly, immune compromised individuals as well as patients with pulmonary diseases.