

Hypercalcemia in sarcoidosis

Sarcoidosis is a multisystem disease of unknown cause. It most often affects young and middle-aged people. It often presents with bilateral hilar adenopathy, pulmonary infiltrates, and eye and skin lesions. The liver, spleen, lymph nodes, salivary glands, heart, nervous system, muscles, bones, and other organs may also be affected.^[1] Proliferation of alveolar macrophages leads to increased production of the metabolite vitamin D – 1,25-dihydrocholecalciferol (**1,25(OH)D₃**), which is involved in calcium metabolism.

Epidemiology

Hypercalcemia occurs in 2–63% of patients (4.8% in our country) with sarcoidosis. Hypercalciuria is observed in 77% (in our case 19.4%) of cases.

Symptoms

Hypercalcemia and hypercalciuria caused by increased production of 1,25(OH)D₃ by alveolar macrophages, which is an adaptation mechanism to the inflammatory process. 1,25(OH)D₃ suppresses the production of IFN-gamma and the proliferation of activated T-lymphocytes in granulomas. Alveolar macrophages also suppress PTH via TNF-alpha and IL-6. Both mechanisms increase Ca absorption and increase Ca turnover in bones.

Hypercalcemia and hypercalciuria also occur in patients with lymphoma. In this case, however, it is resistant to inhibition by corticosteroids and 4-aminoquinolones. As a result of hypercalcemia and hypercalciuria, nephrolithiasis (in 10% of patients with chronic sarcoidosis), nephrocalcinosis, renal failure, hypercalcemic crisis may develop. Rarely, other endocrine complications may occur in cases of thyroid gland, pituitary glands, adrenal glands.

Treatment

For Hypercalcemia with serum **Ca concentration up to 3.0 mmol/l**, monitor closely, ensure adequate hydration, prohibit sun exposure, and institute a vitamin D restricted diet (fish oils). Opinions differ on whether to recommend a Ca-poor diet given the lack of evidence on its effect on homeostasis of calcium.

Hypercalcemia with a serum **Ca concentration above 3.0 mmol/l** should be treated with corticosteroids. If there is no response to corticosteroids, another cause of hypercalcemia should be considered (primary hyperparathyroidism, carcinoma, lymphoma, myeloma). In the case of hypercalcaemia with no other indication for corticosteroids or in patients in whom corticosteroids are contraindicated, ketoconazole (800 mg/d) or hydroxychloroquine (250 mg/d) which inhibit vitamin D hydroxylation may be used.

References

Related articles

- Sarcoidosis
- Sarcoidosis/kidney
- Sarcoidosis (pathology)
- Sarcoidosis (internal)

Source

- ANTON, Jan. Materials for the lecture "Sarcoidosis".

References

1. HUNNINGHAKE, G W – COSTABEL, U – ANDO, M. , et al. ATS/ERS/WASOG statement on sarcoidosis. American Thoracic Society/European Respiratory Society/World Association of Sarcoidosis and other Granulomatous Disorders. *Sarcoidosis Vasc Diffuse Lung Dis* [online]. 1999, vol. 16, no. 2, p. 149-73, Available from <<https://www.ncbi.nlm.nih.gov/pubmed/10560120>>. ISSN 1124-0490.