

Hypogammaglobulinemia in a Patient with Corticosteroid-Dependent Asthma

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Rationale: In evaluating individuals with hypogammaglobulinemia, it is important to exclude iatrogenic causes. Corticosteroids are widely recognized for their ability to cause hypogammaglobulinemia. However, it can be difficult to tell if an individual on chronic steroids has hypogammaglobulinemia from steroid use or from an underlying disorder of the immune system. Furthermore, there has been some disagreement over the years regarding the use of intravenous immunoglobulin (IVIG) in individuals with steroid-induced hypogammaglobulinemia.

Methods: We describe a case of a 50-year-old man with allergic rhinitis, recurrent sinopulmonary infections, and a 32-year history of asthma who has required chronic steroids for the past 20 years. He has had multiple episodes of sinusitis over the past 20 years (on antibiotics about 3 times a year). He has been treated empirically for pneumonia multiple times but has never had imaging that confirmed this. He develops bronchitis requiring antibiotics about three times a year.

Results: Labs showed low immunoglobulin levels for IgG and IgM; IgA was normal, and IgE was elevated (IgG 392 mg/dl, IgM 37 mg/dl, IgA 69 mg/dl, IgE 538 mg/dl). Post-immunization titers showed specific antibody production. Tetanus and Haemophilus influenzae B titers were protective; pneumococcal titers were protective for 10 of 14 serotypes. A CT of the chest showed multifocal bronchiectasis.

Conclusions: Hypogammaglobulinemia is a well-known complication of prolonged corticosteroid use. Those who develop this typically are on ≥ 5 mg/day of prednisone for a prolonged period. Usually, these individuals are able to produce specific antibodies and do not appear to be at an increased risk for sinopulmonary infections, thus making IVIG therapy unnecessary. In our case, the normal antibody titers suggest that the low immunoglobulin levels are due to the patient's chronic steroid use rather than an underlying primary immunodeficiency. We therefore did not place him on IVIG.