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Immune Thrombocytopenia in Multiple Sclerosis Patients Treated with Alemtuzumab: A Rare Side Effect

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Abbreviations: MS: Multiple sclerosis; DITP: Drug-Induced Immune Thrombocytopenia; CBC: Complete Blood Count; ITP: Immune Thrombocytopenia

Opinion

Alemtuzumab provides a unique treatment approach for Multiple sclerosis (MS) patient based on clinical and MRI lesion activity as well as on brain volume loss [1]. Treatment with alemtuzumab for multiple sclerosis (MS) increases the risk for various autoimmune adverse events including immune thrombocytopenia [2-4]. Among disease-modifying MS therapies Alemtuzumab is not unique with respect to its association with ITP.

Thrombocytopenia has been observed with various drugs used for treatment of MS. Autoimmune adverse events were detected in MS patients treated with alemtuzumab in clinical trials [5]. The 6-year follow-up data of the CARE-MS studies were presented at ECTRIMS 2016 and showed 39% of alemtuzumab treated subjects experienced an autoimmune thyroid disorder, 2.6% an immune thrombocytopenia and 0.2% (two cases) an autoimmune renal disease.

ITP is a collective disease of antibody and cell-mediated platelet destruction It may occur in the absence of an evident predisposing cause (primary ITP) or secondary to some associated conditions like autoimmune disorders, lymphoproliferative diseases and neoplasms, congenital immune deficiencies, drugs, and infections [6]. The natural history of alemtuzumab-associated ITP appears distinct from both typical drug-induced immune thrombocytopenia (DITP) and primary ITP as Alemtuzumab-associated ITP often presents in contradistinction to other forms of DITP, which typically occur within days of exposure to the offending agent and resolve within days of its discontinuation [7].

The pathogenesis of alemtuzumab-associated ITP is incompletely understood. A recently reported prospective series of patients with MS identified a family history of autoimmune disease and smoking as independent risk factors for the development of alemtuzumab-associated autoimmunity. The delay in onset points out to mechanism distinct from typical DITP, which generally requires the presence of circulating drug, and suggests a possible disorder of lymphocyte repopulation.

It is necessary to educate the patient to be cautious for any clinical sign suggestive of bleeding. In that case CBC must be obtained immediately and the diagnostic work up for a suspected ITP as described in literature and many studies of the practice guidelines by the BHS should be followed. Before starting treatment with alemtuzumab Complete blood count (CBC) with differential should be obtained. Once treated with alemtuzumab monitoring of platelet count and Complete blood count with differential should be obtained at monthly intervals.

It is imperative to educate the patient to be vigilant for any clinical sign suggestive of bleeding between the monthly CBC checks. In case of such a sign, the CBC must be obtained immediately.

Additional studies and information on the natural history and incidences of alemtuzumab-associated ITP is required. We hope that ongoing, randomized phase 3 trials of alemtuzumab versus SC IFNB-1a for the treatment of RRMS as well as an extension protocol for patients who participated in prior alemtuzumab studies will give this information and even these studies may also elucidate clinical risk factors and biomarkers predictive of the development of alemtuzumab-associated ITP.

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