Negative effect of intravenous immunoglobulin administration on the scintiscans to identify accessory spleen in an idiopathic thrombocytopenic purpura patient

To the Editor: Idiopathic thrombocytopenic purpura (ITP) is a common autoimmune disease characterized by thrombocytopenia caused by autoantibodies that opsonize platelets, resulting in their destruction by phagocytes, principally in the spleen [1-2]. Life-threatening hemorrhages have been reported to occur in 1% to 5% of patients with severe thrombocytopenia [2]. In adult patients, splenectomy is the gold standard therapeutic option for those who fail to respond to 4-6 weeks of medical treatment with steroids or other pharmaceuticals. A subgroup of patients that initially responded to splenectomy will have residual accessory splenic tissue discoverable at relapse [3-4]. Intravenous immunoglobulin (IVIG) is currently used to treat ITP [5].

A 28 years old female patient with ITP was referred to our clinic with generalized ecchymosis, epistaxis and gingival bleeding and thrombocytopenia despite medical treatment. She had splenectomy 5 years ago. Abdominal magnetic resonance imaging revealed a 12mm in diameter accessory spleen in the upper left quadrant coherent, which was confirmed by technetium-99m labeled heat-denatured red blood cells (99mTc-HRBC) scintigraphy (Fig.1a). In our clinic we use the in vivo, in vitro technique. We administer intravenously the stannous pyrophosphate in a 3mL isotonic saline and 30min later we collect a blood sample of 3mL in a syringe containing an anticoagulant and the 99mTc-HRBC pertechnetate in a dose of 740MBq. This syringe is shielded and then is gently rotated to mix allowed to incubate at room temperature for 20min and is later incubated in a mixture water bath for 15min at 49.5±0.5°C degrees. The labeled sample was administered when cooled at room temperature [6-7]. Accessory splenectomy with the guidance of intraoperative gamma probe was planned. Thrombocytes were preoperatively 18x10^9/L. After intravenously administering immunoglobulin (IVIG) in a dose of 400 mg/kg per day for 3 days thrombocytes increased to 295x10^9/L. At the day of the operation, control scintigraphy with 99mTc-HRBC did not visualize any focus of uptake due to IVIG (Fig.1b). After stopping the IVIG administration for 3 days, another 99mTc-HRBC scan which showed the accessory spleen (Fig.1c). With the guidance of a handheld gamma probe, the accessory spleen was identified and removed for months during the follow-up period thrombocytes remained normal.

The 99mTc-HRBC scintigraphy has been demonstrated to be an accurate method for identifying accessory spleens [6-7]. Intravenous immunoglobulin is currently used to treat a multitude of autoimmune disorders including ITP. Although the exact mechanism of action of IVIG in ITP remains unknown it is suggested that increases the expression of an inhibitory receptor; Fc receptor IIb thus blocking the clearance of opsonized platelets [5-9]. Cells of the reticuloendothelial system of the spleen possess large numbers of Fc receptor (FccR)-bearing phagocytic cells which can bind and destroy opsonized platelets.

The non-visualization of the accessory spleen in the 99mTc-HRBC scintigraphy after IVIG administration is possibly due to prolonged in vivo clearance of radiolabeled, antibody-sensitized RBC [9, 11].

In conclusion, it is important to interim administration of IVIG for 3 days in order to prevent non-visualization of accessory spleen in the 99mTc-HRBC scintigraphy.

Bibliography


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