Very Low-dose Intravenous Immunoglobulin for Treatment of Immune Thrombocytopenic Purpura

Treatment of immune thrombocytopenic purpura (ITP) is a controversial subject. The management varies widely, ranging from observation only, to aggressive management with corticosteroids, intravenous anti-D rhesus, intravenous immunoglobulin (IVIG), rituximab, splenectomy, etc. The British Society for Hematology and American Society of Hematology have developed ITP management guidelines [1].

It was first reported in 1981 by Dr. Paul Imbach that high doses of IVIG promote fast recovery of ITP in children. The mechanism of action of IVIG remains as yet incompletely understood [2]. For pediatric patients requiring treatment, a single dose of IVIg (0.8 to 1 g/kg) can be used as first line treatment [3]. We report a case of ITP treated with very low-single dose of IVIG (100 mg/kg).

A nine-year-old boy presented to us with complaints of fever, cough and pin point red spots over the body for 2 days. He also had one episode of bleeding from nose. On examination he had petechial spots scattered all over the body. There was no hepato-splenomegaly. Complete blood count showed haemoglobin of 11.4 g/dL, white blood cell 8000/mm^3 and platelet 8,000/mm^3. Peripheral blood smear was normal other than severe thrombocytopenia and large platelets. The bone marrow examination showed megakaryocytes, which were present in increased numbers. Patient was started on IV methylprednisolone (20 mg/kg/day) for 3 day then switched to oral prednisolone. With this treatment, platelet count increased to 45000/mm^3. Patient again presented after 10 days with platelet counts of 10,000, multiple petechial spots and gum bleeding. Patient was started on intravenous anti-D rhesus (75 µg/kg) but no response was noted. At this stage it was planned to give IVIG but due to cost constraints, patient was given single very low dose of IVIG (100 mg/kg). Bleeding stopped and platelet count increased to 26,000/mm^3 after 1 day, 68,000/mm^3 after 2 days, 140,000/mm^3 after 3 days of IVIG therapy. Four weeks after therapy platelet count was 72,000/mm^3.

Till date there is only one paper concluding that treatment with very low-dose (200mg/kg) IVIG according to individual clinical response is effective and safe in childhood acute ITP [4]. With 1 g/kg dose itself, only 2/3rd of responders will have a sustained response. The remaining 1/3rd will relapse after 6 weeks. Whether the sustained response rate is going to be further lower with 100 mg/kg dose is a question to be explored.

ITP behaves differently in different children. Some respond to steroids, some to IVIG and some to neither. Presumably this is related to the amount of antiplatelet antibody production. We hypothesize that some children may have a relatively lower antibody load and may hence respond to lower doses of IVIG. Further studies are needed to evaluate the efficacy of very low dose IVIG in children with ITP.

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