



Yoga and Ayurveda Module on Idiopathic Thrombocytopenic Purpura (ITP) - A Case Study

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Introduction

Idiopathic Thrombocytopenic Purpura (ITP) is an autoimmune condition characterized by persistent thrombocytopenia (peripheral blood platelet count is less than 1 lakh per mm³ of blood) as a result of autoantibody binding to platelet antigen, results in premature destruction by the reticular endothelial system, particularly in the spleen [1]. In addition to autoantibodies, *Helicobacter pylori* or Hepatitis C may be the cause of ITP. These illnesses are accompanied by co-existing antibodies that may have an impact on the antiphospholipid antibodies, and coexisting immune dysfunctions and molecular mimicry [2]. Ayurveda, yoga therapy, and nutrition modification can all be used as integral part of an integrated treatment plan for a variety of illnesses.

Case Presentation

The patient, a 10-year-old girl, was identified having Idiopathic Thrombocytopenic Purpura (ITP) in 2019. She was admitted in the hospital due to symptoms that included an unremarkable peripheral smear, a physical exam that only indicated minor signs of bleeding linked to the low platelet count. The doctor suggested repeated hospital stays in addition to typical conventional medical therapy. Romiplostim 500 mcg Sc/once weekly, Pantop 40 mg/daily, Folvite 5 mg once daily, Tab. Tranexamic acid 1 g when bleeding occurs, and Tab. Shelcal 500 were normally administered to the patient as part of the standard care. Till June 16th, 2023, these said medications were still being used. On the same day, the girl was brought to a clinical set up having the facility of complementary and alternative medicine near Betnoti, Odisha, East India. In addition to having an abnormal differential leukocyte count (Neutrophilic leukocytosis with myeloid left shift, Dc: Myelocyte + metamyelocyte =16%, Stab Segmented =67%, Lymphocytes =15%, Monocytes =02%), the patient also had a lower platelet count (68,000/mm³ of blood) and a higher white blood count (18100/mm³ of blood). Additionally, the patients complained of excruciating bodily pain, weakness, and excessive menstrual flow. The patient additionally underwent yoga and ayurvedic therapy in addition to normal medical care. The patient asked to engage in yoga meditation, Yoga Nidra (longer version of yoga induced relaxation), and Sukshma Vyayam (subtle light intensity yoga techniques). Two turmeric tablets, two Giloy tablets, one table spoon of Triphala churna (a blend of *Emblica officinalis*, *Terminalia bellerica*, and *Terminalia chebula*), and one teaspoon of Chirata powder (*Swertia chirayita*) each day was recommended. Four tablespoons of each of two different plant leaf juices were taken by the patients on an empty stomach. For a week, the following plants were utilized to make a chart: *Syzygium cumini* L, *Carica papaya*, *Triticum aestivum*, *Dalbergia sissoo*, *Murraya koenigii*, *Mangifera indica*, and *Psidium guajava* L are some examples of related plants. Any two-plant leaf that is prepared as leaf juice on a rotating basis. For preparation of leaf juice, healthy young plant leaves were frequently selected and crushed in a stone grinder. Additionally, the patient was told to have a vegetarian diet composed of 50% raw food and 50% cooked food. The dish was cooked with Indian indigenous ghee. For detoxification, the patient was instructed to consume one bowl of papaya and one bowl of guava.

After undergoing additional treatment for 21 days, the patient significantly improved. The platelet count (342000/mm³ of blood), hemoglobin concentration, and RBC count increased markedly. Neutrophil by 69.2%, Lymphocytes 25%, Eosinophil 3%, Monocytes 0.5%, Basophils 0.7% were the normal differential leukocyte counts, and the total WBC count (11725/mm³ of blood) was reduced to a normal level. The patient reports feeling better, having less physical discomfort, and having fewer blood stains on their skin after receiving the Yoga and Ayurveda treatment module.

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Discussion

In general, yoga practice improved mental stability, happiness, and mental calmness, as well as overall life quality. Moreover, a study reported that pregnant women who practiced yoga for three months had higher platelet counts than the control group [3]. This is in response to the patient's request to incorporate yoga to their treatment regimen. ITP is mostly caused by autoantibodies, and a study found that doing yoga for 8 weeks could reduce the symptoms of autoimmune disease [4]. In addition, the patient was instructed to take several Ayurvedic drug combinations, which were primarily composed of plant extracts. In dengue patients, platelet counts increased by taking extracts of the leaves of the giloy (*Tinospora cordifolia*) plant [5]. The herb giloy has an immunomodulatory effect, improves cellular immunity, encourages the formation of antibodies, and also improves lysosome activity and antibody responses [6-8]. In a mouse model, a methanolic extract of *Syzygium cumini* L dramatically increased both the platelet and leukocyte counts [9]. Moreover, a study with Busulfan-treated mouse models, demonstrated that administering nanocurcumin (curcumin derivatives) could retain bone marrow integrity and enhance the quantity of circulating platelets while the patient is receiving treatment with turmeric tablets [10]. To boost immunity against autoantibodies and raise platelet count, patient was instructed to take various leaf extracts. The platelet count in dengue patient markedly elevated with the juice of *Carica papaya* leaves [11]. Mango leaf was shown to considerably boost RBC count in normal albino rats [12]. Patients with thrombocytopenia caused by alcohol-induced liver cirrhosis, *Carica papaya* and *Tinospora cordifolia* phytoextracts increased platelet count within 15 days and return it to normal within 90 days of treatment [6]. However, a study reported that giving a patient one tea spoon of Chirata (*Swertia chirata*) powder dramatically increased the platelet count in healthy rats when given at high doses [7]. *Murraya koenigii* is a rich source of phenolic chemicals, alkaloids, flavonoids, and steroids. According to one study, *Murraya Koenigii* semi-solid plant extract ingestion increased blood count in phenyl hydrazine-induced anemic rats [13]. An excellent source of phenolic acid and flavonoid content is wheat grass (*Triticum aestivum*) and it was reported in thrombocytopenic rats that wheat grass (*Triticum aestivum*) considerably lowered bleeding and clotting times and raised platelet counts [14]. As the patient was advised to consume papaya fruits and leaves, possibly the polyphenolic chemical present in papaya fruit, leaves, and seeds had improved the formation of RBC and platelets [15]. It was accepted with the fact that the immune system was made more tolerable by a number of plant extracts, which prevented autoimmune diseases. WBC count, cellular immune response, and humoral immune responses were enhanced by *Dalbergia Sissoo* [16]. The patient was instructed to consume Triphala powder because it has a positive effect on the immune system. According to a study, Triphala demonstrated immunomodulatory effect by changing neutrophil activities in albino rats, including phagocytosis, adhesion, and NBT reduction [17]. In a dose-dependent manner, Triphala treatment demonstrated a considerable suppression of complement activity, HMI, CMI, and mitogen-induced T-lymphocyte proliferation. These findings indicated that Thiphala inhibited the experimentally generated inflammation, demonstrating its potency in the management of autoimmune illness and inflammation [18]. Currently it is very clear with the fact that combining yoga treatment with Ayurveda improved cell-mediated immunity and platelet count in ITP.

Conclusion

In the patient with Idiopathic Thrombocytopenic Purpura (ITP), the platelet count considerably rises after doing yoga and an ayurvedic module, and the differential leukocyte count returns to normal. Numerous studies demonstrated that the plant extracts used in Ayurveda increased platelet count, while its mechanism of action remains unclear. Yoga also boosts the immunity and enhances the production of blood cell. Precisely we can conclude that Yoga and Ayurveda module improved the quality of life by improving the physical and mental health. Since there have been very few studies on Ayurveda and Yoga therapy, it is exceedingly challenging to pinpoint the exact mechanism by which the platelet count rises in ITP. Future researches may be carried out to understand its mechanism more appropriately.

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