

# Apheresis in Irritable Bowel Syndrome: A Symposium

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## Perspective

Inflammatory Bowel Diseases (IBD), which include Ulcerative Colitis (UC) and Crohn's Disease (CD), are relapsing-remitting chronic inflammatory ailments of the digestive system that can significantly reduce patients' quality of life. With a continually increasing global incidence and increasing patient requirements and demands, IBD has become a key concern for the gastroenterology community, both practitioners and academics. IBD management has improved significantly over the previous few decades, yet it is still far from satisfactory for a large percentage of patients. At the moment, the therapeutic arsenal includes a variety of medication regimens, endoscopic therapy, and surgery. Apheresis procedures are employed in a variety of medical disciplines, including nephrology, intensive care, and gastroenterology. It entails depleting the patient's blood of specific components (cells, cytokines, or other compounds) based on the filter employed and the indication. In digestive pathology, it is used to treat alcoholic hepatitis, hepatitis C-associated cryoglobulinemia, hypertriglyceridemia-induced acute pancreatitis, and IBD.

IBD has a complex pathophysiology, however leucocytes play an important role in causing intestinal inflammation. The majority of conventional IBD treatments target the proinflammatory cytokines released by activated leucocytes, whereas apheresis works by removing white cells (particularly a fraction of WBCs) from the patient's blood via centrifugation or passing the blood through an adsorptive device. The benefits of apheresis in IBD stem from the removal of certain subtypes of leucocytes from the blood, which move into the intestinal wall and fuel the local inflammatory response. This selective removal of particular white cells—mostly granulocytes and monocytes—is being viewed as an extracorporeal immunomodulation therapy with demonstrated benefits for IBD patients. Apheresis (apheresis, "a taking away") is a medical procedure that involves passing a person's blood through a device that separates out one specific ingredient and returns the remainder to the circulation. As a result, it is an extracorporeal therapy. Different techniques are used in apheresis depending on the material being extracted. If density separation is necessary, centrifugation is the most commonly used procedure. Other approaches include adsorption onto adsorbent-coated beads and filtering [1-5].

During blood donation, blood taken from a healthy donor can be split into its component parts, with the desired component recovered and the unharvested components returned to the donor. In most cases, fluid replacement is not required in this form of collection. Apheresis donors can donate blood more frequently than whole blood donors in many nations.

### Component collections are classified into numerous types:

- Plasmapheresis is the removal of blood plasma. Plasmapheresis can be used to obtain FFP (fresh frozen plasma) from a specific

ABO group. Aside from FFP, commercial applications for this method include immunoglobulin products, plasma derivatives, and the collection of uncommon WBC and RBC antibodies.

- Erythrocytapheresis is the removal of red blood cells. The isolation of erythrocytes from whole blood is known as erythrocytapheresis. It is most often performed using centrifugal sedimentation. This method is used to treat red blood cell illnesses such as sickle cell anaemia and severe malaria. 'Double Reds' or 'Double Red Cell Apheresis' refers to the automated red blood cell collection technique for donating erythrocytes.
- Plateletpheresis (thrombapheresis, thrombocytapheresis) is a treatment that removes blood platelets. Plateletpheresis is the apheresis-based collection of platelets while returning RBCs, WBCs, and component plasma. Typically, the yield is the equivalent of six to 10 random platelet concentrations. The platelets from apheresis must be equal to or more than  $3.0 \times 10^{11}$  in quantity and have a pH of equal to or greater than 6.2.

When the removed constituent is producing severe illness symptoms, the various apheresis procedures may be performed. Apheresis is an invasive procedure that must be conducted on a regular basis. With the rising incidence and complexity of cases, which pose therapeutic challenges, Inflammatory Bowel Disorders (IBD) have become a prominent focus for gastroenterologists worldwide. Current treatments fail to reduce disease activity in a considerable proportion of patients, and certain therapies are linked with serious adverse outcomes.

## References

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