

Therapeutic Plasma Exchange (TPE) for Neurological Disorders at Referral Neurosciences Institute of Bangladesh

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National Institute of Neurosciences and Hospital (NINS&H) has started its journey in 12th September 2012. It has now become the center of excellence in Bangladesh for one stop service for neurological disorders. Department of Transfusion Medicine is one of the integral part of this institute. It begins its journey from 27th January 2013. Therapeutic Plasma Exchange (TPE) has been first ever introduced in public sector in this institute.

In Bangladesh, the first blood bank was established in Dhaka Medical College in 1950. Now there are two hundred nineteen public and one hundred forty five private blood bank in our country. Currently, twenty two centers have Apheresis machine by which both collection of component from healthy donor and treatment of patient are possible. Among twenty two blood bank only few center are doing Plasmapheresis or Therapeutic plasma exchange by Apheresis machine.

Apheresis is a term of Greek derivatives that means to separate or remove. In apheresis procedure, blood is withdrawn from a donor or patient and separated into its components. One of the components is retained and the remaining constituents are recombined and is returned to the individual. Even though both terms are often used synonymously, 'plasma exchange' means separation and removal of plasma from corpuscular blood and the replace of it with various fluids, while 'plasmapheresis' only refers to the removal of plasma. The main indication of apheresis is two types. These are to collect the component from a healthy donor like platelet, leucocyte, plasma, peripheral stem cell (PBSCs) and to remove pathological components from the circulatory blood from the patient. Therapeutic Plasma Exchange (TPE) is a procedure that reduces the amount of circulatory auto antibodies, alloantibodies, immune complexes and monoclonal proteins by centrifugation and replacement of patient's plasma with various fluid like normal saline, albumin, plasma and many more.

In 10th November 2013 one biomedical expert Mr. Raja Gopal from India came to train our apheresis team of NINS&H. From that day the public sector of Bangladesh had entered into a new world of Transfusion Medicine. Both platelet apheresis and therapeutic plasma exchange procedure were introduced

here for the first time. Professor Uttam Kumar Saha was the team leader during this short period of training. Many senior and junior doctor helped us to achieve glorious success in apheresis. Our director Professor Quazi Deen Mohammad, joint director Professor Md. Badrul Alam were very co-operative and gave every support to establish apheresis procedure in Transfusion Medicine department of NINS&H. Dr. Ferdous Ara, Dr. Aminul Islam, Dr. Zubaida Nasreen, all technologist and other staff of this department were devoted to make a successful mission. Professor Dr. Md. Nowfel Islam gave us inspiration to do the first case after training.

It was very difficult for us to solve the technical problem of the machine (Comtec) as there was no agent in Bangladesh at that time but one engineer from importer of this machine tried his best to help us. We have two machine, one is Comtec, Fresenius Kabi, Germany, and another one is Cobe Spectra, USA. Both are continuous flow centrifugation machine. We follow the guide line of American Society for apheresis (ASFA).

As it is a Neurology hospital, mostly patients with neurological disorder like Guillain-Barre syndrome (GBS), Chronic Inflammatory Demyelinating Polyneuropathy (CIDP), Myesthenia Gravis (MG), Multifocal Motor Neuropathy (MMN) were treated here. Around two hundred patients with one thousand sessions were treated till today. Beside neurological diseases two patient from outside suffering from Thrombotic Thrombocytopenic Purpura were treated by this procedure. Another patient suffering from Hemolytic Uremic syndrome was treated from here.

Plasma exchange opens a new era of treatment in Transfusion Medicine. Patient who can't bear the cost of Intravenous Immunoglobulin (IVIG) can take benefit from this procedure. It also reduces the duration of hospital stay of patient. For the poor patient still it is expensive as price of the kit is still too high. To reduce the cost, we use normal saline and fresh frozen plasma (FFP) instead of albumin. We faced few adverse effect during TPE. Common complications were hypotension (10.54%), allergic reactions (8.73%), access problem (3.61%) and vomiting (2.61%). Most of the adverse reactions were mild and improved spontaneously or by

using simple medications. There was no mortality related to TPE procedure so far. TPE is done in other centers with ICU/HDU facilities, as life threatening complication may occur.

TPE is a teamwork. Its success depends on every stakeholder's effort treating the patient. With the help of

doctors and staff from different specialty, our department of Transfusion Medicine is committed to uphold the glory of NINS&H by its highest effort.

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