



TO STUDY THE ADVERSE EFFECT OF THERAPEUTIC PLASMA EXCHANGE IN PATIENTS WITH NEURO-IMMUNOLOGICAL DISEASES PATIENTS

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ABSTRACT

BACKGROUND-Therapeutic plasma exchange(TPE) is an extracorporeal blood purification technique designed for the removal of large molecular weight substances from the plasma .To study the adverse effect of therapeutic plasma exchange in patients with neuro-immunological diseases patients

METHODS- This descriptive cross-sectional study was conducted in Department of Immunohematology & Transfusion Medicine, Blood Bank and Department of Neurology SMS hospital, Jaipur.

RESULTS- In 16 Patients no adverse reaction is seen during procedure. Mild rashes is seen in 11 patients. 1 patient reported tingling sensation over body and 1 patient complained nausea and vomiting during procedure.

CONCLUSION- To conclude, therapeutic plasma exchange is an effective and safe procedure when performed with expertise in appropriate indication.

KEYWORDS : TPE, Auto-immune, Outcome, Adverse effect

INTRODUCTION

Therapeutic plasma exchange(TPE) is an extracorporeal blood purification technique designed for the removal of large molecular weight substances from the plasma . The purpose is elimination of pathognomonic autoantibody immune complex, inflammatory mediators, complement components and cytokines which play role in many kinds of neurological autoimmune disease.The patient's blood is passed through an apheresis machine,where the filtered plasma is removed and discarded with reinfusion of red blood cells along with replacement fluid such as plasma or albumin into the patient.¹ TPE procedure includes removal of antibodies, alloantibodies, immune complexes, monoclonal protein, toxins or cytokines, and involve replenishment of a specific plasma factor. TPE was first employed in 1952 in multiple myeloma to control hyper-viscosity. In 1970 TPE had evolved as alternate modality in number of neurological diseases. Regardless the purpose, a large quantity of plasma must be removed during TPE and replaced with a sufficient physiological fluid (fresh frozen plasma or albumin) to maintain the intravascular compartment. The efficacy of TPE depends on the plasma volume removed in relation to the patient's total plasma volume, the distribution of the pathogenic substance to be removed between intravascular and extra vascular spaces, and the synthesis and equilibrium rate of the substance between the compartments.²

MATERIAL AND METHODS

Study Area: Department of Immunohematology & Transfusion Medicine, Blood Bank and Department of Neurology SMS hospital, Jaipur.

Study Period: Over a period of one year after approval of plan research review board of institute from June 2019 till desired sample size is achieved.

Type Of Study: Cross-sectional

Design Of Study: Descriptive

Study Group: Patients with myasthenia gravis

Inclusion Criteria- Patients with myasthenia gravis

Exclusion Criteria- Disorder in which role of apheresis therapy is not established.

Patient who have experienced a serious adverse event associated with the first TPE procedure.

Patients who have not given informed consent.

Patients who is medically not fit for TPE

RESULTS

This study was done among 29 patients
 9 patients (31.03%) were MG
 8 patients (27.58%) were from NMO.
 7 patients (24.13%) were from TM.
 5 patients (17.24%) were from GBS.

A total of 114 Therapeutic plasma exchange procedure were performed on 29 patients. In which the improvement begins within days of commencing the treatments and progressed steadily so that 26 out of 29 patients who responded favourably to TPE with a manageable adverse reaction

Table 1. Adverse effect

Adverse effect	No of patients(n=29)	Percentage
Nil	16	55.31
Mild rash	11	37.93
Nausea or vomiting	1	3.45
Tingling sensation	1	3.45

In 16 Patients no adverse reaction is seen during procedure. Mild rashes is seen in 11 patients. 1 patient reported tingling sensation over body and 1 patient complained nausea and vomiting during procedure

DISCUSSION

Mild rashes is seen in 11 patients which were easily managed by giving I.V 1mg phenaramine maleate and 4mg dexamethasone given and procedure is completed rarely procedure is stopped.

1 patient reported tingling sensation over body, Tingling sensation over the body is due to Citrate toxicity it is observed during therapeutic apheresis procedures. Citrate is the anticoagulant used in apheresis and is normally metabolized quickly in the liver. If the amount of citrate infused exceeds the body's ability to metabolize it, the level of ionized calcium will decrease, and the donor may feel numbness or tingling around the mouth (paresthesias).³This can be clinically detected using the Chvostek's sign or Trousseau's sign. To prevent this complication, calcium is infused intravenously while the patient is undergoing the therapeutic plasmapheresis.

Intravenous calcium is not recommended on a routine basis. If FFP is used as replacement fluid during a therapeutic plasma exchange, this phenomenon is more likely to occur because of the combined effects of the anticoagulant in the FFP and the citrate used in the apheresis procedure itself. 10ml Calcium Gluconate in 100 ml NS given to patient.

Calcium supplementation by mouth may also be given. 1 patient complained nausea and vomiting during procedure. I.V. Pantoprazole 20mg & DNS given. Different studies showed that Therapeutic plasma exchange is effective in 55% - 100% of Neuro-immunological patients. This wide discrepancy between the reports can be due to difference in severity of disease, protocol of Therapeutic plasma exchange or different in study conduction.

CONCLUSION

To conclude, therapeutic plasma exchange is an effective and safe procedure when performed with expertise in appropriate indication.

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