

Single-center Experience of Therapeutic Plasma Exchange in Neurological Diseases : Indications, Efficacy, and Safety

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INTRODUCTION

- Neurological diseases encompass a broad spectrum of conditions characterised by dysfunction or damage to the nervous system leading to significant mortality and morbidity. Majority of these conditions have an autoimmune or inflammatory component.
- Therapeutic plasma exchange (TPE) has emerged as an effective and promising treatment modality for managing these conditions.
- TPE involves the extracorporeal removal of plasma, which contains pathogenic autoantibodies, immune complexes, and proinflammatory mediators. Removed plasma is replaced by crystalloids, colloids, and/or normal saline.
- This therapeutic modality has demonstrated success in various autoimmune-mediated diseases, including neurologic conditions such as Guillain-Barré syndrome (GBS), myasthenia gravis (MG), chronic inflammatory demyelinating polyneuropathy (CIDP), neuromyelitis optica spectrum disorders, and multiple sclerosis.
- The aim of the study was to describe the clinical profile and the experience with the usage of TPE in various neurological patients with emphasis on safety and efficacy of TPE

MATERIALS & METHODS

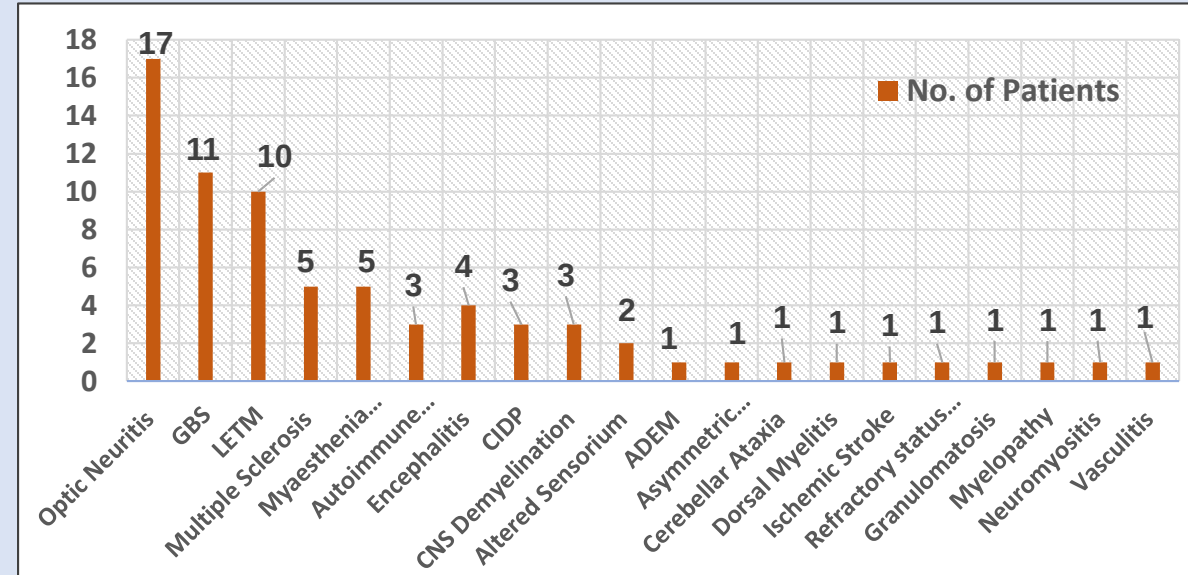
- The study included patients who underwent TPE for neurological diseases with an autoimmune or inflammatory etiology between January 2017 and September 2024 .
- All TPE procedures were done through a central venous catheter
- 53 Procedures were done on COMTEC whereas 20 procedures were done on Spectra optia
- Total blood and plasma volume were calculated using the following formula $PV = BV \times (1 - Hct)$.
- Albumin-saline and fresh frozen plasma (FFP) were selected as replacement fluids according to the patient's clinical and laboratory parameters.
- TPE was given every other day for most of the patients and a total of 1–1.5 plasma volumes were exchanged per cycle.
- Adverse events and complications associated with TPE were documented.

CONCLUSION

- TPE has emerged as safe and effective therapeutic modality in the management of neurological diseases .
- TPE demonstrated positive clinical improvement measures, a favorable safety profile, and the potential for long-term benefits.
- More RCT & prospective clinical trials are required to study the impact of TPE on patients outcomes

RESULTS

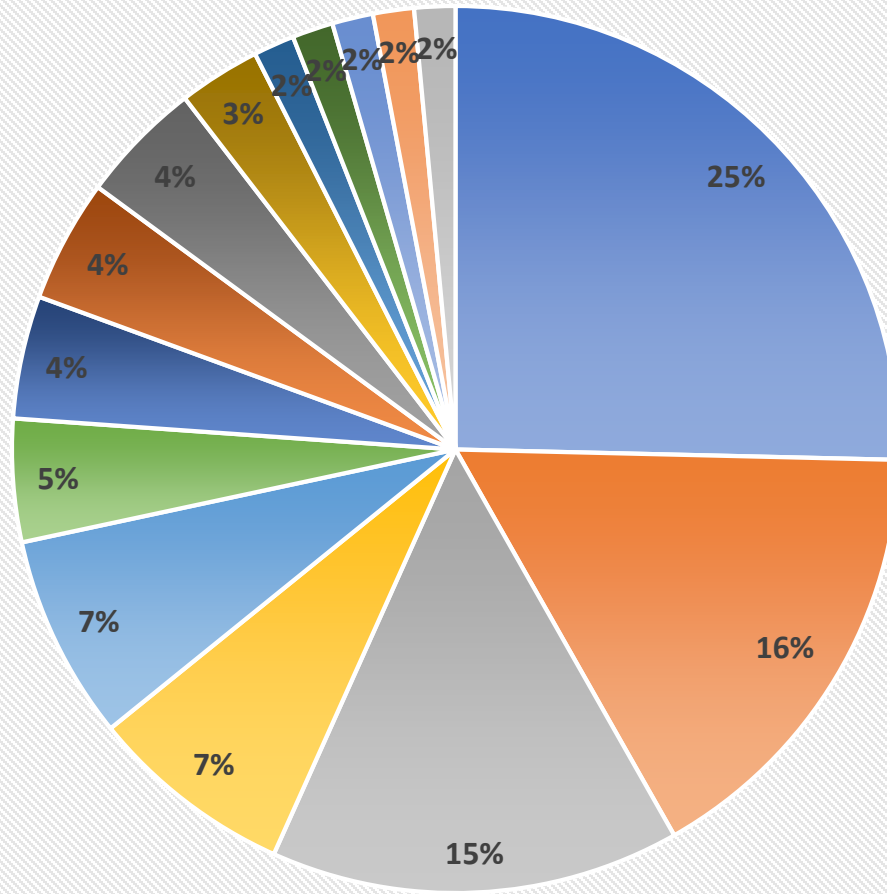
- A total of 73 patients underwent 343 TPE procedures during the study period. Forty three patients were male and 30 were female with an average age of 41.3 years.



Clinical response		Adverse Reactions	
No. of patients		No. Of Patients	
Improvement	44	Allergic reaction	05
Partail Improvement	16	Paresthesia & perioral tingling	07
Expired	2	Hypotension	08
Lost Follow Up	1	Catheter block	01
No Improvement	10	Severe anaphylactic reaction	01

REFERENCES

- Gavhed D, Ghatnekar O, Forsberg P. Therapeutic plasma exchange in patients with neurologic disorders: A retrospective multicenter study. Transfus Apher Sci 2017;56:425-9
- Rama Chandran S, Thirugnanam U, Ganesan K. Role of therapeutic plasma exchange in neurological disorders: A single-centre experience. Asian J Transfus Sci 2020;14:17-22



- OPTIC NEURITIS
- LETM
- MULTIPLE SCLEROSIS
- CNS Demyelination
- Encephalitis
- Dorsal Myelitis
- Asymmetric Weakness
- Granulomatosis
- GBS
- Myaesthesia Gravis
- CIDP
- Autoimmune Encephalitis
- Altered Sensorium
- ADEM
- Cerebeller Ataxia