THE NEW ARMENIAN MEDICAL JOURNAL
Volume19 (2025), Issue 1, p.61-67

DOI: https://doi.org/10.56936/18290825-1.v19.2025-61

EFFECTIVENESS OF THERAPEUTIC PLASMA EXCHANGE IN COMPARISON WITH STANDARD OF CARE IN THE TREATMENT OF YELLOW PHOSPHORUS POISONING: AN OBSERVATIONAL STUDY IN SOUTH INDIAN POPULATION

Mohammed N.D.[1], Raghavendra R.[1*], Arjun B.[1], Aishwarya C.[1], Sujatha B.S.[2]

1 Department of General Medicine, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal, Karnataka, India

2 Department of Obstetrics and Gynaecology, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal, Karnataka, India

Received 14.09.2024; Accepted for printing 11.02.2025

Abstract

Yellow phosphorus poisoning is commonly seen in India, predominantly due to intentional self-harm. It is known to cause acute liver failure, which is a major contributory factor for its high mortality. Liver transplantation has been the definitive treatment in patients fulfilling the King's College Hospital Criteria for liver transplantation. Therapeutic plasma exchange is an alternative treatment option that has shown promising results with significantly improved outcomes, in various studies.

We conducted a single centre, prospective observational study in a tertiary care hospital in Southern India from August 2022 to March 2024. 46 patients were included in the study, 23 of whom underwent therapeutic plasma exchange. Patients were monitored throughout their hospital admission and were further grouped into those that fulfilled the King's College Hospital criteria and those that did not.

Fulfilment of King's College Hospital criteria was found to be a poor prognostic indicator, with a mortality rate of 84% ($p<0.001$). Survival rate of 65% was seen in patients who underwent therapeutic plasma exchange ($n=15$), when compared to 57% ($n=13$) in those that did not ($p=0.546$). Among patients who met King's College Hospital criteria, a mortality rate of 100% was seen without therapeutic plasma exchange ($n=8$), which was reduced to 72% ($n=5$) with the usage of therapeutic plasma exchange ($p=0.228$). Survival, among patients who underwent therapeutic plasma exchange, was directly proportional to number of cycles of therapeutic plasma exchange that they underwent ($p=0.007$). Early initiation of therapeutic plasma exchange (within 5 days of yellow phosphorus poisoning) had a survival rate of 73% ($n=8$), when compared to 58% ($n=7$) in those whom therapeutic plasma exchange was initiated after 5 days ($p=0.46$).

Improved survival rates were seen in yellow phosphorus poisoning patients that underwent therapeutic plasma exchange, especially in those that met the King's College Hospital criteria. However, statistical significance could not be established. Larger multicentric randomized controlled trials are needed to further analyse outcomes with the usage of therapeutic plasma exchange.

Keywords: *yellow phosphorus poisoning, plasmapheresis, therapeutic plasma exchange, King's College Hospital criteria, acute liver failure*

Cite This Article as:

Mohammed N.D., Raghavendra R., Arjun B., Aishwarya C., Sujatha B.S. *(2025).* Effectiveness of therapeutic plasma exchange in comparison with standard of care in the treatment of yellow phosphorus poisoning: an observational study in south Indian population .The New Armenian Medical Journal, vol.19(1),61-67; DOI: https://doi.org/10.56936/18290825-1.v19.2025-61

Address for Correspondence:

Rao Raghavendra, Associate Professor
Department of Medicine, Kasturba Medical College Manipal Academy of Higher Education Manipal, Karnataka 576104, India
Tel.: +91 9901731924
E-mail: ragsmanipal1983@gmail.com