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A study to evaluate the role of Extra-Corporeal Membrane Oxygenation in the cases of Aluminium Phosphide poisoning.

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Objectives: Life-threatening cases of poisoning may lead to cardiovascular or respiratory failure. Thus, this study was done with an aim to evaluate the role of Extra-Corporeal Membrane Oxygenation (ECMO) in maintaining adequate cardiac output and tissue perfusion in cases of acute severe Aluminium Phosphide (ALP) poisoning.

Methods: This was a prospective study carried out in the patients admitted with aluminium phosphide poisoning in a tertiary care hospital; over a duration of two years. All the patients of either gender who were classified as high-risk of developing cardiovascular or respiratory failure were included in the study. The outcome of the patients who received veno-arterial ECMO was compared with that of the patients receiving conventional therapy. Also, the duration of hospital stay and morbidity thereafter was considered. Appropriate statistical tests were applied.

Results: A total of 92 patients with aluminium phosphide were admitted with Aluminium phosphide poisoning, out of which 58 were considered high-risk category. Among the 58, 26 provided consent for ECMO and 32 were started on conventional therapy. The mortality rate was significantly lower ($p < 0.001$) in patients who received ECMO than conventional therapy. Among the survivors who received ECMO, the duration of hospital stay was significantly longer ($p < 0.001$) than conventional therapy group. No mortality was noted at three months of follow-up. There was significant increase ($p < 0.001$) in the left ventricular ejection fraction in patients receiving ECMO as compared to conventional therapy.

Conclusions: It can be concluded that ECMO can be used to improve outcomes in the high risk patients with Aluminium phosphide intoxication. Various parameters such as timing of starting ECMO, baseline LVEF can be predictors of effectiveness of ECMO.