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"PGI SCORE" FOR PREDICTING MORTALITY IN SEVERE ALUMINIUM PHOSPHIDE POISONING

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Introduction: Aluminium Phosphide poisoning is an important cause of morbidity and mortality in India. We propose a 3 point model for predicting mortality in patients with severe aluminium phosphide poisoning.
Patients and methods: A prospective study including all patients with aluminium phosphide poisoning was carried out in the medical emergency attached to Nehru Hospital at our centre from June 2010 till December 2011. At admission, heart rate, blood pressure, blood sugar, electrocardiogram, blood gases, liver functions, renal functions were recorded and all the patients was followed up till discharge or death. Primary outcome was mortality. Parametric variables like blood pressure, pulse rate, heart rate was analysed by student's t test. For categorical data like mortality, relative risk of death was calculated with 95% confidence intervals, with chi square test. Further correlation was carried out by univariate, multivariate and multiple logistic regression analysis.
Results: A total of 105 patients were enrolled during the study period. Sixty-two percent were males and 78% patients were in the age group 15-35 years. The mean dose consumed was 3.6 grams. Mortality was 51%. Important parameters, after multivariate analysis, correlating with mortality were Blood pH<7.2, Systolic blood pressure <90, and Glasgow coma scale <13. On multivariate regression, none of these parameters were independently associated with mortality. The odds ratio for predicting mortality was 12.614 for pH<7.2, 17.600 for SBP <90 mmHg, and 18.621 for GCS <13. The Area under the ROC curve for SBP <90 was 1.552, for GCS <13 was 1.591 and for pH <7.2 was 1.615. A score of 1 each was assigned to SBP <90 and pH <7.2 and GCS <13. When applied to the study group it was noticed that 100% with score of 0 survived and 96.4% with a score of 3 died. The survival with score of 1 was 85% and for a score of 2 was 61%.
Conclusion: pH<7.2, Systolic blood pressure <90, and Glasgow coma scale <13 are important predictors of poor outcome in patients with severe aluminium phosphide poisoning and a scoring system based on these parameters is a useful adjunct in assessing severity of poisoning.

Table 1. Poor prognostic parameters in severe aluminium phosphide poisoning

Parameters	Odds ratio	AU ROC curve
Arterial pH <7.2	12.614	1.615
Systolic blood pressure <90	17.600	1.552
Glasgow coma scale <13	18.621	1.591

Table 2. PGI Score for predicting mortality in aluminium phosphide poisoning

Score	Sensitivity	Specificity	PPV	NPV	Diagnostic accuracy
1	100%	46.4%	62%	100%	71.4%
2	93.9%	76.8%	78%	93.5%	84.8%
3	55.1%	98.2%	96.4%	71.4%	78.1%