

Peripheral Burning Pain Predicts Mortality in Paraquat Poisoning

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Introduction : Self poisoning with paraquat has a case fatality ratio (CFR) over 65% in Sri Lanka. As there is no treatment it is important to be able to predict outcome in order to educate patients and relatives as early as possible. Majority of the prognostic tools use plasma paraquat level^{1,2} which is not readily available in many clinical settings.

Anecdotal reports by staff suggested that patients who complained of burning sensation (BS) (described as if their skin is on fire) of the body had a poor prognosis and a prospective study was initiated. **Methods :** This study was nested in to two prospective studies (observations study and a randomized controlled clinical trial) in 3 hospitals in Sri Lanka. We collected demographic data, presence or absence of burning sensation and major outcome and estimated plasma paraquat concentration within 24 hours post ingestion. **Results : (table 1)**

There were 142 patients (95 males) with a median age of 27years (IQR 21- 38). Outcome was recorded in 122 patients with 67 deaths. Others were lost to follow up after discharge. BS was associated with a significantly higher risk of death (risk ratio: 3(95% CI 2-4.5, p<0.05) and higher plasma paraquat levels (p<0.05). Median time to develop BS was 1 day (IQR1-1). Difference of time to death was not significant.

Table1.

	number	time to develop BS	deaths	CFR and 95%Confidence Interval	plasma Paraquat Concentration (number 94)	time to death (hours)
BS	58	2 (1-3)*	49	84.48%(72-91)	2.67 µg/mL (0.84-14.2) *	44 (30-87)*
No BS	64		18	28.13%(18-40)	0.022 µg/mL (0.005-0.78) *	50(24-79)*

* median and Interquartile range

BS has specificity of 83.6% (95%CI 73-91), a sensitivity of 73% (95%CI 61- 82) and a positive predictive value of 84.4(73-91) in predicting death.

Discussion : It is possible that this sign may help discriminate between patients who have no chance of survival and those who may potentially benefit from interventions. The mechanism is not clear but could include either a direct concentration related effect or be a marker of oxidative stress. **Conclusion :** Presence of burning sensation is associated with high plasma paraquat levels and is strongly predictive of death.

References : 1. Hart TB, Nevitt A, Whitehead A. A new statistical approach to the prognostic significance of plasma paraquat concentrations.Lancet.1984; 2:1222-1223. 2. Jones AL, Elton R, Flanagan R. Multiple logistic regression analysis of plasma paraquat concentrations as a predictor of outcome in 375 cases of paraquat poisoning.QJM.1999; 92:573- 578.