

Patterns of Beta-Glucuronidase in Pesticide Self- Poisoning.

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Introduction : Beta-glucuronidase (BG) has been suggested as a more sensitive and rapid biomarker of exposure to suspected organophosphorus and carbamate pesticides.

Methods : Blood samples measuring BG were taken in 33 consenting patients treated for suspected or confirmed anticholinesterase pesticide self- poisoning at 2 hospitals in Sri Lanka. Most patients had moderate symptoms and required treatment with atropine and/or pralidoxime. The majority of patients also had depressed RBC

acetylcholinesterase and plasma cholinesterase. **Results** : The mean BG value observed was 861.3 IU/dL (IQR 622-1055, Range 307.6- 2154) BG was observed to be higher than the upper limit of normal in 86% of samples taken. However, there was no consistent temporal pattern after admission. The BG went up in some patients and down in others as they improved over the first few days. There was also not a close relationship to severity between individuals, the highest levels were observed in a patient with only mild poisoning.

Conclusions : The results we observed are consistent with Beta-glucuronidase being a sensitive biomarker of OP exposure. However, its use in the assessment of acute exposures requires further investigation. In particular, it is important to examine for a consistent effect with all anti-cholinesterases and to gain data on how long levels remain elevated after resolution of clinical effects. It is also important to determine if there are inherited or acquired factors that influence the baseline levels or response to pesticides.