

THERAPEUTIC ROLE OF HYPERINSULINEMIA/EUGLYCEMIA IN ALUMINUM PHOSPHIDE POISONING; A PROSPECTIVE CASE-CONTROL STUDY

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Objective: Different protocols have been suggested for treatment of aluminum phosphide (ALP) poisoning. The aim of the current study was to evaluate the possible therapeutic effect of hyperinsulinemia/euglycemia (HIE) in treatment of ALP poisoning.

Methods: In a prospective case-control study, a total of 88 ALP-poisoned patients were included and assigned into either HIE group undergoing glucose/insulin/potassium (GIK) protocol or control group who were managed by routine conventional treatments. These two groups were then compared regarding the signs and symptoms of toxicity and their progression, development of complications, and final outcome to see the possible effect of GIK protocol on the patients' course of toxicity and outcome.

Results: The two groups were similar in terms of demographic characteristics and on-arrival vital signs and lab tests. Using GIK protocol resulted in significantly longer hospital stay and better outcome (Table). This was while minimum systolic blood pressure was significantly less in the survivors of the GIK group compared to those who survived in the conventional group, showing a worse course of toxicity in the patients who were treated by GIK protocol.

Conclusion: GIK protocol improves the outcome of ALP poisoning and increases the length of hospital stay.

Table: Late characteristics of cases and controls (n=88)

	Conventional treatment (n=44)	GIK + Conventional treatment (n=44)	P Value	Total (n=88)
Min SBP(mmHg) Mean ±SD (range)	81.1 ± 19.9 (40-125)	73.8 ± 13.5 (35-100)	0.04	77.5 ± 17.3 (35-125)
Min DBP(mmHg) Mean ±SD (range)	47.1 ± 13.1 (30-70)	41.3 ± 10.3 (22-69)	NS	44.1 ± 12.1 (22-70)
Min pH Mean ±SD (range)	7.15 ± .15 (6.87-7.40)	7.16 ± .15 (6.87-7.40)	NS	7.15 ± .15 (6.87-7.40)
Min pCo ₂ (meq/L) Mean ±SD (range)	29.2 ± 9.7 (14-57)	26.3 ± 10.1 (13.8-86)	NS	27.9 ± 9.9 (13.8-86)
Min Hco ₃ (meq/L) Mean ±SD (range)	11.7 ± 4.9 (4.5-25)	11.3 ± 4.8 (4.4-22.3)	NS	11.6 ± 4.8 (4.4-25)
Hospital stay (hrs) Median[IQR](range)	24 [11, 45] (2- 96)	60 [14, 144] (3-1656)	<0.001	26 [12, 72] (2-1656)



Intubation				
Yes(%)	42 (95)	39 (87)	NS	81 (92)
No (%)	2 (5)	5 (13)		7 (8)
Outcome				
Death (%)	32 (72.7)	22 (50)	<0.03	53 (61.6)
Recovery (%)	12 (27.3)	22 (50)		33 (38.4)