PROGNOSTIC VALUE OF CORTISOL AND THYROID FUNCTION TESTS IN POISONED PATIENTS ADMITTED TO TOXICOLOGY ICU

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OBJECTIVES: Prognostic value of cortisol and thyroid function tests (TFTs) has previously been evaluated in medical ICUs mainly in patients with metastatic cancers and septic shock. Increased cortisol was first noticed in aluminum phosphide (ALP)- poisoned patient and subsequently confirmed in some other poisonings such as paraquat toxicity. We aimed to evaluate the possible prognostic efficacy of cortisol and TFTs in patients admitted to toxicology ICU of our center.

METHODS: In a prospective observational study, a total of 200 patients consequtively admitted to our toxicology ICU between December 2014 and June 2015 were entered. All patients who had been admitted directly from the emergency department and the time of ingestion/consumption of the poison was less than 24 hours prior to cortisol check (8AM to 10AM of the first ICU day) were considered to be included. Patients with possible ingestions/exposures that could affect the cortisol and TFT levels were excluded. Cortisol levels of all patients were sent for analysis at 8AM- 10AM period of the first 24 hours post-ingestion/exposure. Both SAPS II and APACHE II scores as well as TFTs were also checked for every single patient. All scores were then compared to see which one was the best prognostic factor in the poisoned patients. The comparison was first performed in all patients followed by a comparison between ALP- and non-ALP-poisoned patients.

RESULTS: In total, SAPS II (P=0.004), T4 (P= 0.014), and cortisol level (P<0.001) could prognosticate death in ICU-admitted intoxicated patients. After performance of regression analysis, only cortisol had such efficacy (P=0.04; OR= 1.06; CI 95%= 1.05-1.08; Cut-off=42µg/dL; Sensitivity = 70%; Specificity= 82%). In the comparison between ALP- and non ALP-poisoned patients, level of consciousness, mean arterial pressure, and cortisol level had the efficacy to prognosticate death in ALP poisoning (all P values< 0.001 in both uni and multivariate analyses). Median [IQR] GCS was 7 [6, 10] and 15 [8, 15] in non-ALP and ALP-poisoned patient, respectively (P<0.003). SAPS II and APACHE II could not prognosticate death in patients in toxicology ICU at all.

CONCLUSIONS: Cortisol is probably better than any other prognostic factor in toxicology ICU. Level of this factor is generally higher in ALP-poisoned patients which may be due to the high level of stress in these patients while they remain conscious till the final stages of toxicity and are aware of deterioration of their clinical condition or may be due to their significantly less blood pressure.