

ABSTRACT

IMPACT OF HYPERNATREMIA & HYPONATREMIA IN CRITICALLY ILL PATIENTS

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Abstract: Background: - Hyponatremia & hypernatremia are common in patients admitted in intensive care unit (ICU) with prevalence approaching 20-30%. Recent data reveal that both hypo-and hypernatremia present on admission to or developing in the ICU are independent risk factors for poor prognosis

Objective:- Relation of sodium disorders to length of ICU stay, Duration of mechanical ventilation and Mortality in ICU.. **Methods:** - study was conducted on 400 patients admitted in a medical-surgical ICUs in Kasr AL Aini Teaching hospital during the period from 1 st of July 2011 till December 2011. All patients admitted to the ICU during the period of the study were included. **Exclusion criteria** 1. Patients stay less than 24-hours in the ICU. 2. Patients who received renal replacement therapy during their ICU admission. 3. Patients who experienced multiple sodium disturbances (hypernatremia & hyponatremia) during their ICU stay. The following data will be collected, Demographic (age, sex), Clinical (admission diagnosis, admission Acute Physiology and Chronic Health Evaluation (APACHE) II score, Vital signs 12-lead ECG and Serum Na: Measure serum sodium directly using ion-specific electrodes to eliminate the pseudohyponatremia, laboratory artifact seen in hyperproteinemia and hyperlipidemia. Serum sodium is measured at 12-hr interval.

Results: Our results demonstrate that hyponatremia and hypernatremia are common in critically ill patients. We identified 137 (34.25 %) patients with hyponatremia and 63 (15.75%) patients with hypernatremia. We could observe that increasing APACHE II scores, fluid balance disturbances, and mechanical ventilation are associated with ICU sodium disturbances. Patients with hypernatremia and hyponatremia had higher APACHE II scores compared with eunatremic patients (19, 15 and 10, respectively $p=0.001$). Our results are in agreement with the report of Stelfox et al in 2008. The length of ICU stay was

longer in hypernatremic and hyponatremic patients compared with eunatremic patients (14 and 11 versus 5 days,respectively , $p= 0.0001$). There were higher incidence of mortality in patients with hypernatremia (39.7%) and hyponatremia (19%) compared with eunatremic group (13%) ($p= 0.0001$). An observation is that patients with hypernatremia carry the highest mortality risk. **Conclusion:-** Our study confirmed the association between sodium disturbances and poor survival outcomes among critically ill patients. Our data indicates that hypernatremia and hyponatremia were independent risk factors that affect the length of stay and mortality in the ICU.

Key words:- Hyponatremia , hypernatremia & APACHE II score