

Investigation of inpatient hyponatraemia in a teaching hospital

P. Tzoulis, D. Nair, R. Leyland, E. Woolman, N. Martin, PM Bouloux
Centre for Neuroendocrinology, Royal Free Hospital, London, UK

Introduction

Appropriate investigation of hyponatraemia is essential for optimal management.

The objectives of this study were:

- To evaluate the adequacy of investigation of hyponatraemia.
- To assess the effect of factors such as expert input, speciality of caring clinical team and levels of serum sodium on the adequacy of investigation.

Methods

This retrospective, single-centre study included all inpatients with serum sodium (sNa) ≤ 128 mmol/l at any point during hospitalisation over a 3-month period.

Univariate logistic regression models for the association of study groups (medical vs. surgical patients and sNa ≤ 125 mmol/l vs. sNa 126-128 mmol/l) with the frequency of performance of various investigations enabled computation of RRs (relative risks).

Results

Among 139 patients (69 males, 70 females) with a mean age (\pm SD) of 70.2 ± 16.1 years, 20 patients (14.4%) received endocrine input.

80% of them underwent complete clinical and laboratory assessment compared to only 5% of patients managed without endocrine input (P value < 0.001 , RR 15.8, 95% CI 7.1 – 31.1).

More patients under medical specialities had appropriate investigations than patients under surgical specialities, but this difference did not reach statistical significance.

Results

Investigations	N=139 (%)
Volume status	86 (61.9%)
Serum osmolality	53 (38.1%)
Urine osmolality	52 (37.4%)
Urine Na	49 (35.2%)
Paired osmo + Na	44 (31.6%)
Serum TFTs	85 (61.1%)
Serum Cortisol	44 (31.6%)

Investigations	Nadir sNa ≤ 125	Nadir sNa 126-128	RR	P value
	N=87	N=52		
Volume status	73.6%	42.3%	1.74	<0.001
Serum osmo	52.9%	13.5%	4.53	<0.001
Urine osmo	50.6%	15.4%	3.28	<0.001
Urine Na	47.1%	15.4%	3.06	<0.001
Paired osmo-Na	40.2%	9.1%	4.18	<0.001
Serum TFTs	70.1%	46.2%	1.51	0.007
Serum cortisol	45.6%	7.7%	5.97	<0.001
Endocrine input	17.2%	9.1%	1.79	0.318

Conclusions

- Hyponatraemia is often underinvestigated, but more cases in this cohort were appropriately investigated than in any previous study.
- Endocrine input can improve significantly the adequacy of investigation.
- Studies are needed to evaluate if widespread provision of endocrine input by "hyponatraemia teams" can improve patient outcomes.