

# Investigation of inpatient hyponatraemia in a teaching hospital

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## 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)  $\leq 128$  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  $\leq 125$  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  $70.2 \pm 16.1$  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 $\leq 125$	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.