



# **MODERATE/SEVERE HYPOVOLEMIC HYPONATREMIA WITH** URINARY SODIUM LOSS SECONDARY TO HYPOALDOSTERONISM: ANALYSIS OF 28 CASES

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## INTRODUCTION

Hypoaldosteronism (HA), a cause of hypovolemic hyponatremia (HN) with urinary(U) sodium(Na) loss, is often underdiagnosed. We studied the characteristics of 28 patients with an episode of HA-induced moderate/severe hyponatremia.



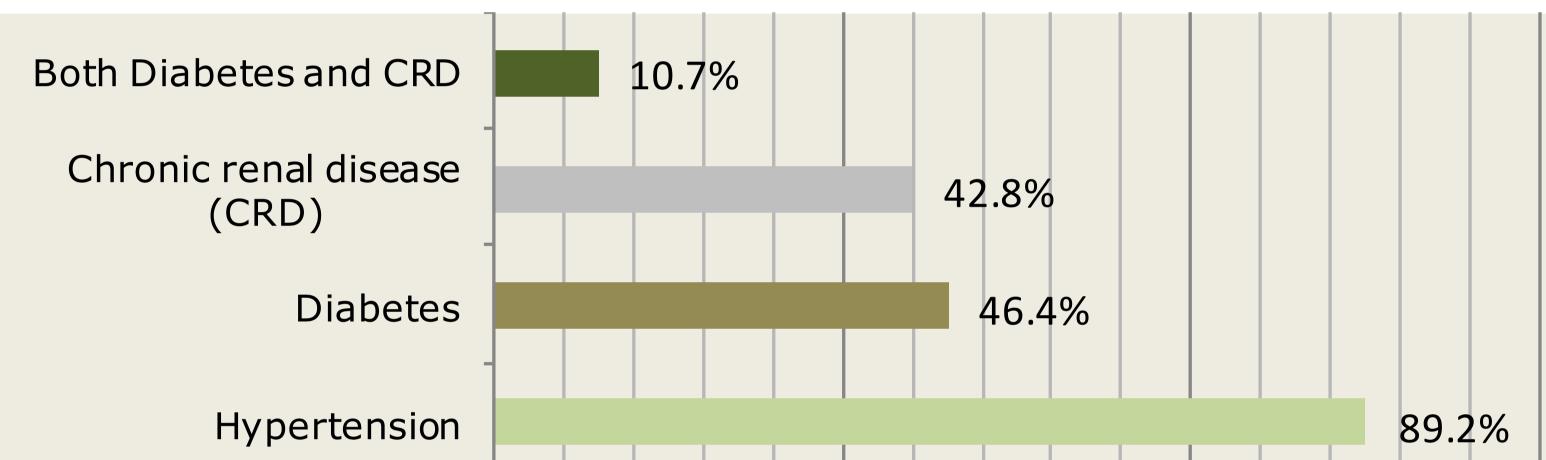
A single center, retrospective study of all 28 patients seen by Endocrinology at our general hospital between 2012-2015 with hypoaldosteronism-induced moderate/severe hyponatremia. All patients presented a Nadir serum Na (NSNa) <130 mmol/L (corrected) for total proteins and glycemia), low yugular central venous pressure, low ocular pressure, with Addison's Disease ruled out (ACTH, cortisol and/or Synacthen test). In all cases, UNa>25 mmol/L, U osmolality(Osm)> Plasma(P) Osm, the Transtubular Potassium Gradient (TTKG) < 5. Group I (10/28) had risk factors for aldosterone deficit (heparin, ARBs, ACEi, aliskiren, NSAIDs, and/or tacrolimus), Group II (2/28) risk factors for mineralocorticoid resistance (obstructive uropathy, urinary infection, renal transplant, trimetroprim, and/or spironolactone), Group III (16/28): both. Na, Potassium (K) values in mmol/L, Osm mOsm/kg. Student's T-test, X<sup>2</sup>, Spearman's Rho, Kruskal-Wallis, Mann-Whitney U. Na, K in mmol/L.

## **RESULTS**

#### **Table 1. General Characteristics.**

Sex	Males	Females		
	57,1%	42,8%		
Mean Age	71,36 years (SD 15,5)			

#### **Graph 1. Comorbidities.**



### Graph 4. Aldosterone by groups.

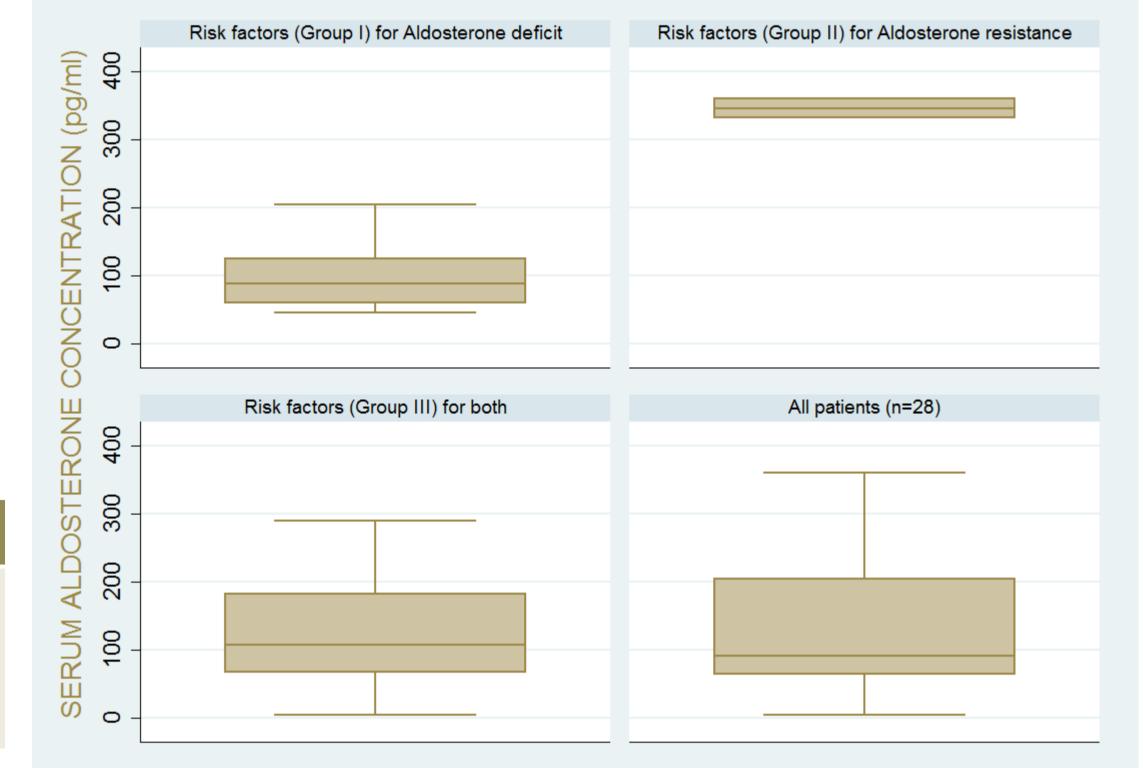




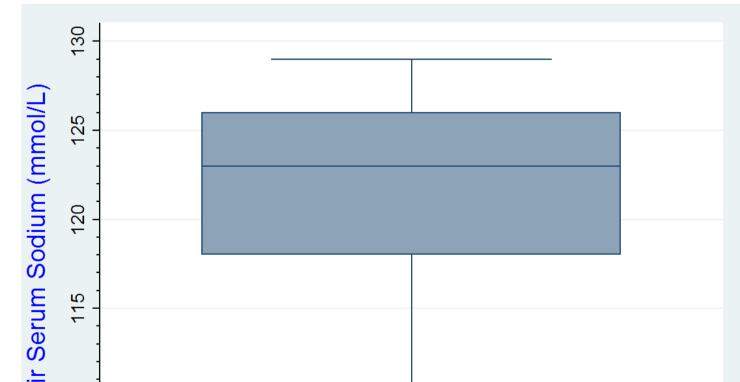
Table 2.Mean values at diagnosis (SD)

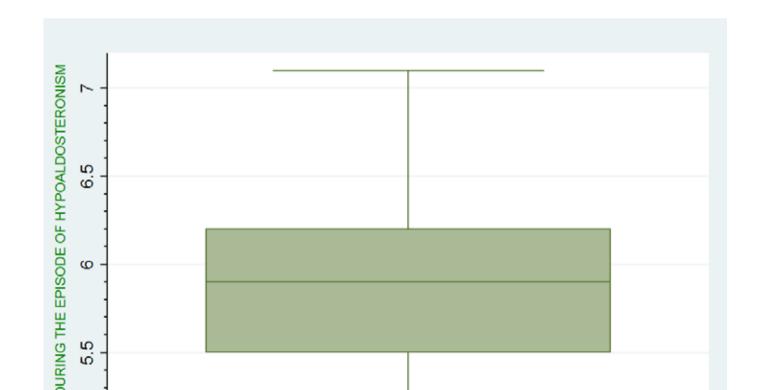
SNa	SK	UNa	POsm	UOsm	TTKG	SUrea	SCreatinine	Uricemia
							1.12 mg/dl	
(5.62)	(0.62)	(38.66)	(12.47)	mOsm/kg (167.75)	(0.85)	mg/dl (25.23)	(0.56)	(1.45)



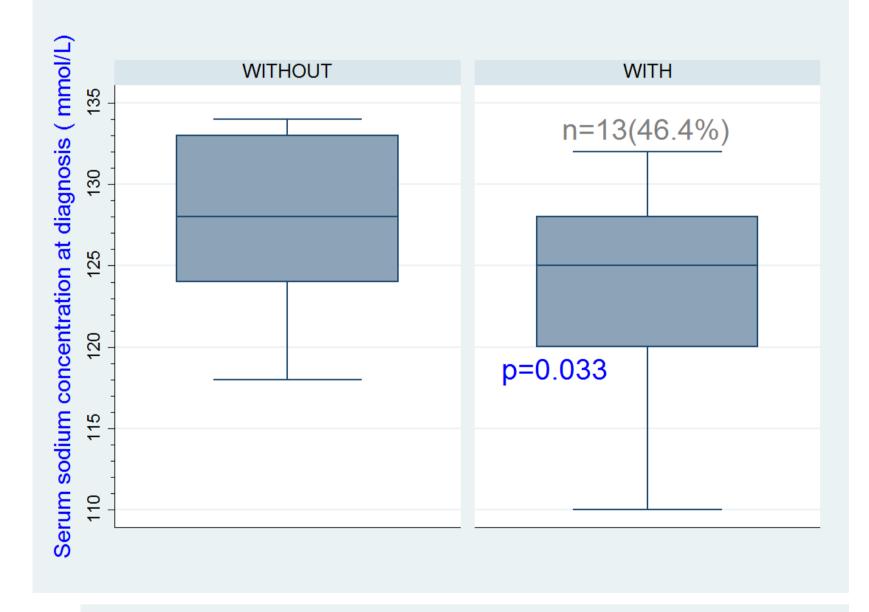
	Group I	Group II	Group III
Mean SNa	123.9 (3.18)	121.2 (2.83)	120.63 (6.12)
Mean SK	4.85 (0.62)	4.65 (0.49)	5.27 (0.62)

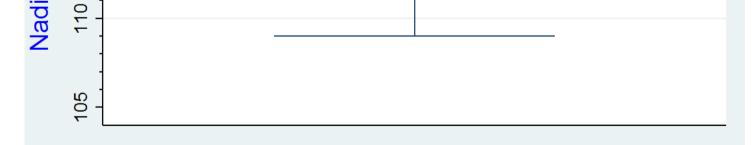
#### Graph 2. Nadir serum Sodium. Graph 3. Maximum serum Postassium.

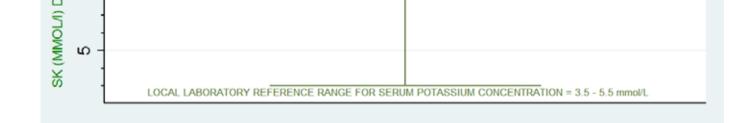




#### Graph 5. SNa with or without heparin and/or trimetoprim therapy.

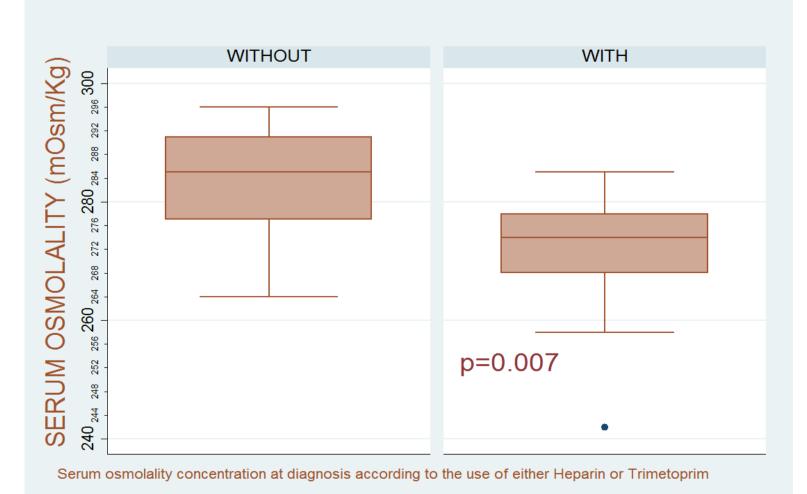






Patients with both high renin (>25 pg/ml) and low aldosterone (<100 pg/ml), all in Gr III, had significantly lower NSNa:113.33(4.04) than the rest: 123.19(4.2), p= 0.033.

Graph 6. SOsm with or without heparin and/or trimetoprim therapy.



## CONCLUSIONS

Hypoaldosteronism can induce marked hyponatremia. Most patients had risk factors for both inhibition of aldosterone secretion and mineralocorticoid resistance. Heparin and/or trimetoprim use was associated with lower serum sodium and serum osmolality levels.

