



## FLUID ISN'T ALWAYS BENEFICIAL IN DENGUE: A CASE OF SYNDROME OF INAPPROPRIATE ANTIDIURETIC HORMONE SECRETION IN DENGUE FEVER

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### ABSTRACT

Vomiting is one of the warning symptoms in dengue fever and could be due to splanchnic congestion, cholecystitis, Hepatitis etc. It is very tempting to attribute the concomitant hyponatremia to hypovolemia. However, rarely the hyponatremia can itself be the cause of vomiting instead of outcome. We present a rare presentation of dengue fever with hyponatremia secondary to Syndrome of inappropriate Antidiuretic hormone secretion which, if not timely diagnosed can lead to adverse patient outcome with usual fluid therapy in dengue patients.

### KEYWORDS :

#### Case description:

31-year Male presented to ER with complains of multiple episodes of vomiting since 3 days. He reported 8-9 episodes of vomiting per day with no response to domperidone/ondansetron.

There were no complains of abdominal pain, Fever, Headache, loose motions or altered sensorium. He denied bleeding, Oliguria and breathlessness.

Patient had been discharged two days ago from a local hospital with diagnosis of Dengue fever (Dengue NS1-positive, IgM-Neg). He had been given IV fluids, Tab.Cefixime and paracetamol during admission. His vomiting had been present since last day of admission. On discharge, He had been advised to have lots of fluids orally.

O/E -Patient was drowsy but easily arousable. He was miserable and anxious with repeated vomiting. Afebrile with a BP of 110/60mmHg, Pulse-58/min (regular, normal volume). There was No pallor, icterus, oedema. Tongue-Moist. Skin turgor-Normal. No petechiae. No focal CNS deficits or Neck stiffness. No abdominal tenderness or organomegaly.

#### Investigations-

Hb-15.5.TLC-5800, Platelet-4.8lac.RBS-84mg/dl, Serum creat-0.6mg/dl.BUN-9mg/dl, Total bilirubin-0.8mg/dl.Sgot-67U/L, Sgpt-72U/L. Sr Na+ -121meq/L, K+ =4.8mEq/L, Cl-90meq/L. ABG = PH-7.36 pco22=35mmHg. Po2-104mmHg. Hco3- =19.7meq/L.Spo2-97.5%.

Spot urine Na+ -96meq/L, Urine osmolarity-612mosm/kg.

Calculated Sr osmolarity-249mosm/kg.

T3-84ng/dl.T4-4.6mic g/dl.TSH-5.9micIU/ml, Anti TPO-negative.

Sr cortisol-12micigram/dl.

X ray chest PA view-Normal.

USG (Abdomen and Pelvis)-Hepatomegaly with fatty liver. (During prior admission, his Hb-14.8mg/dl.TLC-5800, Platelet-4.8lac.Serum creat-0.7mg/dl.BUN-8mg/dl, Total bili-1.0mg/dl.Sgot-100U/L, SGPT-83U/L, Sr electrolytes-not available).

#### Course;

Patient was initially started with symptomatic treatment including Antiemetics, Antacids, and slow IV hydration. Once above reports were available, IV hydration was stopped and patient was advised not to have plain water. He was started on salt capsules TDS.

In view of hypo osmolar euvolemic hyponatremia and a strong possibility of SIADH, V2 receptor Antagonist (Tolvaptan) was started at 15 mgs once daily.

Patient responded well to the treatment. Vomiting resolved gradually over next 10 to 12hrs. He became alert, well oriented. Urine output-1.5 to 2L/day. Serum sodium increased gradually to normal levels on day 3. Following was the trend of his serum Sodium levels.

Day 1-121meq/L

Day 2-123meq/L

Day 3-130meq/L

Day 4-137meq/L.

Pt was discharged on day 4 in a totally asymptomatic state.

#### DISCUSSION;

Hyponatremia is the commonest electrolyte abnormality in Dengue fever and also has prognostic implications<sup>(Rohmani, 2019)</sup> (REDDY, 2017)Hyponatremia is thought to be caused by peripheral fluid extravasation resulting in intravascular hypovolaemia. Previous studies have identified that Dengue patients are 9.7 times more likely to have clinically significant hyponatremia (Na <130mmol/L) than patients with similar febrile illnesses. Hypovolaemia, confirmed by a urine sodium of <20mmol/L, was also found to be 8.1 times more common in dengue patients (Mekmullica, 2005).

Available literature suggests that anti-diuretic hormone release is controlled by both osmoreceptors and baroreceptors. Hypothalamic osmoreceptors are extremely sensitive and respond to as little as 1%change in tonicity whereas baroreceptors are less sensitive but far more potent stimulators of ADH release.This means that in the shocked patient, a hypovolaemic stimulus will override a hypotonic inhibition and volume will be conserved at the expense of tonicity<sup>(DUNN, 1973)</sup>

This mechanism would account for the rapid fall in sodium levels while the patient was symptomatic, whilst microcapillary leakage could explain the preceding hyponatremia.

However, this patient was clinically euvolemic and haemodynamically stable with normal central venous pressures throughout hospitalisation and met all criteria syndrome of inappropriate secretion of anti-diuretic hormone (BARRTER, 1997)Inappropriate antidiuretic hormone secretion initially causes an increase in water retention followed by a secondary solute loss mediated by a normal renin-angiotensin-aldosterone system. Patient's intravascular

volume is maintained.

Treatment therefore involves fluid restriction to create a negative balance in order to restore osmolality. Prompt diagnosis and vigilant fluid resuscitation help to reduce the neurological complications of hyponatremia in Dengue infection. The management of this case required careful consideration.

#### **CONCLUSION:**

Hyponatremia must be strongly considered in a patient of Dengue with persistent vomiting.

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