



## Syndrome of inappropriate secretion of antidiuretic hormone associated with H1N1 infection: a case report and review of the literature

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**Background:** The syndrome of inappropriate secretion of antidiuretic hormone (SIADH) is the most common cause of hyponatremia. The underlying diseases associated with SIADH are mainly malignancies, pulmonary diseases and central nervous system diseases. We describe a patient with SIADH during the course of H1N1 virus infection and we reviewed the other cases reported in literature.

### Case report:

- A 36-year-old man with no medical history
- **Complaints:** persistent fever, non productive cough and myalgias for 10 days.
- He did not received any medication.
- **Physical examination:** a well-orientated man, temperature : 39.2°C, blood pressure 140/80 mmHg, pulse 102 beats per minute and respiratory rythm 18 cycle/minute.
- **Laboratory data:** elevated markers of inflammation, **hyponatremia 121 mmol/l**, kalemia 3.87 mmol/l and **serum osmolality was 257 mOsm/kg** (normal range: 280-300 mOsm/kg). However, **urinary sodium concentration and osmolality were high : 78 mmol/24h, 3174.8 mOsm/kg** respectively.
- **Lumbar puncture :** clear cerebrospinal fluid (CSF) with 2 cells/mm<sup>3</sup>, glucose : 0.7 g/l and protein 0.65 g/l. All bacterial and fungal cultures, blood and urine cultures were all **negative**.
- **Screening of mycobacterium tuberculosis** in the respiratory tract was negative.
- **Thyroid function and adrenal steroid hormones** were normal.
- **Chest x-ray** did not show abnormalities.
- **Abdominal ultrasound, echocardiography and thoraco-abdominal CT scan** were unremarkable.
- **Rapid flu test was positive for influenza type A.**
- **Treatment:** Intravenous infusion of hypertonic saline and fluid restriction were started and serum sodium concentration increased to 135 mmol/l in the 7<sup>th</sup> day.
- No anti-viral treatment.
- The patient was diagnosed for **SIADH due to H1N1 (Influenza A) virus infection**. He recovered within one month.

### Laboratory data

	Results
<b>Hemogram</b>	
WBC	9480/mm <sup>3</sup>
Hb	16 g/dl
Platlet count	167000/mm <sup>3</sup>
<b>Blood chemistry</b>	
Na+	121.9mmol/l
K+	3.67mmol/l
Creatinine	82.1µmol/l
Glucose	6.22 mmol/l
Ca2+	2.2mmol/l
SGOT/SGPT	69/105 U/l
LDH	172 U/l
C-reactive protein	105.19 mg/l
<b>Blood osmolality</b>	<b>253.3 mOsm/kg</b>
<b>Urinalysis</b>	
Na+	78 mmol/24h
K+	29 mmol/24h
Cl-	71 mmol/24h
Urea	182.7 g/l
Creatinine	3197.7 µmol/l
<b>Urin osmolality</b>	<b>3174.8 mmol/24h</b>
<b>Cortisol</b>	<b>370 .74 ng/ml</b>
TSH	1.23 U/ml
T4	22.7 pmol/l

### Review of cases of SIADH associated with H1N1 virus infection

Cases	Age/sex	History	Na+mmol/l/ osmolality mmol/kg	Antiviral therapy	Follow-up
1	3/female	Rhabdomyolysis	121/272	None	Recovery
2	68/female	Neurological disorder	108/214	None	Neurological sequelae
3	7/male	Delirium	SIADH	Oseltamivir	Recovery
4	?/female	?	SIADH	?	Unknown
5	75/male	Cough, chest pain	130/261	Oseltamivir	Recovery
6	7/male	Seizures	131/?	Oseltamivir/ Rimantadine	Recovery
7	26/female 29/male	Dyspnae Cough, chest pain and dyspnae	126/123	None None	Died Died
8	65/male	Fever, productive cough, dyspnae	122/276	Oseltamivir	Recovery
9 (current case)	36/male	Cough, dyspnae	121.9/253.3	None	Recovery

**Conclusion:** SIADH is associated with a large number of diseases such malignancy, pulmonary conditions, central nervous system disorders and medications in clinical practice. Few cases of SIADH during the course of viral infections were reported. The diagnosis of H1N1 infection was often established after a mean duration of 8 days (extremes : 2-17 days). The delay to diagnosis of SIADH due to H1N1 virus infection may in part be due to the lack of awareness of this condition amongst physicians. Otherwise, the clinical presentation is miscellaneous and often misleading.