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MORVAN SYNDROME: A RARE CAUSE OF SYNDROME OF INAPPROPRIATE ANTIDIURETIC HORMONE SECRETION

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Abstract

The syndrome of inappropriate antidiuretic hormone secretion (SIADH) accounts for an important part of hyponatremia cases. The causes of SIADH can be detected almost always. As a rare disorder, Morvan Syndrome can be defined by the sum of peripheral nerve hyperexcitability, autonomic instability and neuropsychiatric features. Antibodies to voltage-gated potassium channels (Anti – VGKC-Ab) including contactin associated protein-like 2 antibodies (CASPR2-Ab) and leucine-rich glioma inactivated protein 1 antibodies (LGI1-Ab) were previously known for the potential association with this condition. We present a Morvan Syndrome in a patient who presented with various neuropsychiatric symptoms and SIADH.

Keywords: hyponatremia, SIADH, Morvan Syndrome, CASPR2-Ab, anti – VGKC-Ab, LGI1-Ab

Introduction

One of the most important cause of hyponatremia is the syndrome of inappropriate antidiuretic hormone (ADH) secretion (SIADH). Despite normal or increased plasma volume, impaired water excretion caused by the inadequacy to suppress the secretion of ADH is the most believed pathophysiological process of SIADH [1]. When the diagnosis of SIADH has been established, the cause should be searched by the clinician with the inclusion of history or signs of malignancies, full-review of drug history and radiologic imaging of brain and chest [2]. We report here a rare cause of SIADH, which was an unexpected rabbit in the hat.

Case Report

A 28-year old woman was admitted to the Internal Medicine Department because of recent memory impairment, hallucination, twitching of muscles in upper limbs, hyperhydrosis and persistent hyponatremia on the laboratory. In the history, her complaints had started two months before. Prior to the admission to our department, she was evaluated in distinct clinics such as neurology, endocrinology and psychiatry. Finally, she was treated as a psychosis but her persistent hyponatremia wasn't clarified properly. Before admission, psychosis treatment had been stopped by the patient two weeks ago. On physical examination, she was anxious, had excessive sweating and resting tachycardia. Her cranial nerves examinations were normal but mental examination showed memory loss. She had twitching in both upper limbs. Her hemogram, renal, liver, adrenal, thyroid and toxicology tests were normal. But persistent low serum sodium was detected in the range of 120–130 mEq/L. Her spot urinary sodium was increased (169 mmol/L, normal <30 mmol/L). The serum osmolarity was decreased (262 mOsm/kg) and urinary specific gravity was 1.010. These findings were compatible with SIADH as a reason for her persistent hyponatremia. In aspect of the evaluation of SIADH, she was primarily examined and searched for drug history, infectious disease and malignancies (including tomography, MRI and FDG-PET) but we couldn't find anything. Tumor markers (CEA, AFP, CA 125, CA19-9, CA15-3) were negative. Neurology and psychiatry consultations were not helpful in this timeline. At that point, we thought that her clinical condition might be explained by paraneoplastic or autoimmune encephalitis process, therefore her serum samples were sent to the

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reference laboratory for evaluation of biomarkers of autoimmune and paraneoplastic disorders. Positive serum antibodies against contactin-associated protein-like 2 (CASPR2-Ab), a subtype of voltage-gated potassium channel (VGKC) complex, was detected on her samples, but leucine-rich glioma inactivated protein 1 antibodies (LGl1-Ab), which is the other subtype of Anti – VGKC-Ab, was not detected. Cerebrospinal fluid examination did not show raised proteins - 23 mg/dl (normal: 20–40 mg/dl) or decreased glucose 71 mg/dl (normal: 45 – 80 mg/dl), with normal cell count (cells: 2/mm3, all lymphocytes). Viral and bacterial encephalitis or metastases to the central nervous system were ruled out with appropriate laboratory and imaging procedures. Electromyography (EMG) showed spontaneous activity including myokymic discharges in both upper and lower limb muscles. Along with the clinical condition and laboratory findings, the diagnosis was accepted as a Morvan Syndrome. She was transferred to the Neurology Department and treated with fluid restriction, carbamazepine, pulse steroid (1 g/day methylprednisolone for 3 days) and intravenous immunoglobulin (IVIG – at a dose of 0.4 g/kg/day). Her hyponatremia, clinical findings including memory loss and electromyography findings were resolved after therapy. Hyponatremia persisted on her full clinical course until the final diagnosis and treatment. But after the pulse steroids and IVIG, her sodium level was detected 136 mmol/L on the twenty-fifth day of treatment. On the out-patient follow-up, no complication has been observed until the present.

Discussion

Morvan syndrome is a rare autoimmune encephalitis defined by a combination of peripheral nerve hyperexcitability, autonomic instability and neuropsychiatric features. The syndrome has a tendency to occur in men: male to female ratio of 13:1. The mean reported age is 52 years. The presentation process can be seen subacute to chronic in 74% of cases, with an average duration of symptoms of 12 months at the time of diagnosis [3]. Our case is different from literature in aspect of the patient's gender, presentation age and the disease process. Irani et al. have been reported 29 Morvan Syndrome cases but only two of them were female [4].

The patient's admission symptoms and signs can be categorized into different classes. Myokimia on the EMG and twitching of muscles in upper limbs can be considered as a peripheral nerve hyperexcitability symptoms and signs; at the other end, recent memory impairment, hallucination can be accepted as neuropsychiatric signs. Hyperhydrosis and resting tachycardia can be presumed to dysautonomia findings [4-8].

The other admission finding was hyponatremia. Hyponatremia is a rare condition in Morvan Syndrome [4].

Anti – VGKC-Ab include both CASPR2-Ab and LGl1-Ab. Actually, LGI1-Ab was thought to be relevant with neuropsychiatric features and hyponatraemia; on the other hand, CASPR2-Ab was associated with peripheral nerve hyperexcitability [4]. But in our case, although both markers were tested, we found only CASPR2-Ab positivity. These findings was rarely reported in relation with hyponatremia [9]. Like in our case, hyponatremia is a rare manifestation of Morvan Syndrome. The patient's hyponatremia was persistent from the beginning to the final therapy and was not resolved despite fluid restriction and the other interventions. We think that hyponatremia is the other key component of the symptoms.

CASPR2-Ab can be associated with thymomas, which means poor prognosis for patients [4,9]. Our patient was evaluated for thymoma or different malignancies with imaging methods including PET-CT and the other imaging procedures, but none of these were detected. This disease's treatment globally includes IVIG, pulse steroid and neuron membrane stabilizers like carbamazepine. After transferred to the Neurology Department, IVIG and pulse steroid were started along with carbamazepine. The vast majority of Morvan Syndrome patients without any malignancy can be treated well with IVIG, exchange of plasma procedures and pulse steroids[4,6,10]. IVIG was administered at a dose of 0.4 g/kg/day for 5 days and pulse steroid was administered at a dose of 1 g methylprednisolone for 3 days. Her sodium level was raised to the 138 mmol/l on the twenty fifth day of clinical course. Before discharge, she was almost completely recovered; there were no signs of neuropsychiatric symptoms. She was discharged home and out-patient follow-up was advised in aspect of risk for neoplasm and treatment adverse effects.

In conclusion, with presenting this case, we would like to emphasize that SIADH differential diagnosis is a thorough process and all the patients who present with SIADH must be evaluated carefully. The combination of CASPR2-Ab and LGl1-Ab might help clarify the underlying reason of SIADH and accompanying neuropsychiatric features.

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