□ CASE REPORT □

# Syndrome of Inappropriate Secretion of ADH (SIADH) due to Small Cell Lung Cancer with Extremely High Plasma Vasopressin Level

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**A 76-year-old man with small cell lung cancer associated with the syndrome of inappropriate secretion of ADH (SIADH) visited our hospital. The serum Na level was normal on the first visit, but 2 weeks later it decreased to 114 mEq/L with an extremely high plasma vasopressin (VP) level of 1520 pg/ml. Serum Na was normalized after the reduction of the tumor size by chemotherapy, but the plasma VP level remained between 150 to 600 pg/ml. On gel filtration of plasma VP two peaks of immunoreactive VP were eluted at the positions of a larger molecule than authentic VP and authentic VP, and VP in urine gave only one peak compared to that of authentic VP. The dilution curve of plasma VP was almost parallel and that of urine was completely parallel to the standard curve. These findings suggest that a larger VP with low physiological activity was predominantly secreted in the present patient and manifested relatively mild symptoms despite the extremely high plasma VP level.**
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***Key words:*** syndrome of inappropriate secretion of ADH (SIADH), small cell lung cancer, vasopressin, gel filtration

## Introduction

Syndrome of inappropriate secretion of ADH (SIADH) is characterized by a sustained release of VP in the absence of either osmotic or nonosmotic stimuli, and is most commonly due to ectopic VP secretion by malignancies of several kinds. Small cell lung cancer is known to ectopically produce various peptide hormones including VP. We experienced a 76-year-old man with small cell lung cancer associated with SIADH. The SIADH disappeared and the serum Na level became normal after reduction of the tumor size by chemotherapy, while the plasma VP level remained rather high. On gel filtration of VP in plasma and urine a large molecule of VP was predominantly eluted compared to authentic VP, suggesting a low physiological activity of this larger VP.

## Case Report

A 76-year-old man visited the Anan Kyoei Hospital on December 5, 1991 with complaints of chest pain, and cough with sputum for three months.

His height was 146.5 cm, weight 45 kg, blood pressure, 130/60 mmHg, pulse 84 beats/min and regular, and body temperature 37.0°C. Neither dehydration nor edema was detected. The lymph nodes were not palpable. No abnormal findings were observed in his chest, abdomen and nervous system.

Laboratory tests at the time of admission revealed the following results (Table 1): urinalysis was normal, but mild anemia was observed; BUN 17 mg/dl, serum Creatinine 0.8 mg/dl, sodium level 145 mEq/L, potassium 4.0 mEq/L, chloride 109 mg/dl, thyroid and adrenal functions were normal. The levels of tumor markers were high (neuron-specific enolase 49.8 ng/ml and SCC 2.3 ng/ml).

The chest radiogram showed a tumor-like shadow in the left upper lung field and a scar from pleuritis in the right lung (Fig. 1). The chest CT scan showed a mass lesion in $S_3$ of the left lung and swelling of the mediastinal lymph nodes. Bronchofiberscopical biopsy demonstrated tumor cells of small cell lung cancer (Fig. 2).

Two weeks after admission he developed nausea and drowsiness, and his serum Na level decreased to 114 mEq/L. At that time, the plasma VP level was extremely high (1520 pg/ml), and

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