CASE REPORT

Development of geriatric syndromes after taking countermeasures for polypharmacy: an overlooked issue of quitting semiregular single-dose medicine

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Abstract

We report a case of an elderly woman on polypharmacy who developed appetite loss, general fatigue and muscle weakness mainly from secondary adrenal insufficiency caused by quitting one semiregular single-dose medicine. Because the degree of insufficiency was mild, her symptoms were eliminated after some time without additional treatment. The present case includes important lessons related to medication management in elderly patients. Additionally, the present case also warns us to be cautious while diagnosing geriatric syndromes as a part of the physiological aging process or additional disease symptoms. Drug-induced geriatric syndrome from quitting semiregular-use drugs should be investigated in future studies.

INTRODUCTION

Adverse drug reactions (ADRs) in elderly patients can be mistaken as part of physiological aging or an additional disease symptom (1). The differentiation of ADRs from physiological aging or disease symptoms requires utmost care, particularly when the ADRs are caused by reducing the number of drugs (2). This becomes difficult if a patient is taking semiregular-use drugs.

CASE REPORT

At the end of July 2015, a 78-year-old woman visited a general hospital for appetite loss, general fatigue and muscle weakness. Because she was taking several drugs, her doctor stopped some medications, including antidiabetics (metformin 500 mg/day and vildagliptin 100 mg/day), antihypertensive agents (amlodipine 5 mg/day, candesartan 8 mg/day and doxazocine 1 mg/day) and statins (pitavastatin calcium 1 mg/day), as these could cause ADRs. She was also directed to stop all over-the-counter and semiregular-use drugs. However, her symptoms did not improve. Over 2 months, her weight reduced by ∼2.0–50.7 kg (body mass index: 23.2 kg/m²). By the end of September, she developed mild fever and was admitted to our hospital, accompanied by her granddaughter. Her children took turns with her hospital visits, except when she was temporarily admitted to a nearby clinic.

She had some concomitant disease, including hypertension, type II diabetes mellitus, osteoporosis, osteoarthritis, insomnia, bronchial asthma and skin rash, resulting in regular hospital visits. She regularly took more than 10 oral medications (includ-
ing diabetic drugs, antihypertensive drugs, benzodiazipine and proton pump inhibitors). Besides hearing difficulties, she was diagnosed with mild cognitive impairment 1 year before admission. Her daughter-in-law helped her manage regular drugs. She had good adherence to regular medicines.

Although she had right knee osteoarthritis, she could walk independently. Pretibial and pedal edema was observed in both legs. She had a rash, a mild headache with no neck stiffness and a body temperature of ∼37.5°C. She had no diarrhea, vomiting or abdominal pain, and she defecated every other day without laxatives. There were no signs of upper respiratory tract infections. Her muscle strength was not sufficient to open a bottle cap.

At the time of hospitalization, she had been taking an antihistamine (d-crolefeniramin mara acid) containing a steroid (betamethasone valerate) almost every other week for 10 years, without anybody’s knowledge. There seemed to be non-adherence to the drug.

We asked the concerned doctor what types of medicines she had prescribed. We found she had been taking an antihistamine. Fortunately, her appetite and pyrexia began to recover when the test was performed. Two months after admission, fever lysis was achieved without the additional treatment of steroid medications. Eosinophilia and hypokalemia gradually improved toward the date of discharge. On her visit to our outpatient clinic after discharge, we found that muscle strength and cognition had recovered, even though we did not restart cholinesterase inhibitors. Likewise, it was unnecessary to restart medications for diabetes mellitus and dyslipidemia. We restarted olmesartan 10 mg/day a few days after admission, during the hospital stay and after discharge. No additional antihypertensive drugs were required.

Based on her symptoms, clinical course and recovery without additional treatment, infectious, malignant and autoimmune diseases were unlikely. The ACTH test results indicated that secondary adrenal insufficiency occurred from quitting semiregular use of a steroid-containing antihistamine agent. We conclude that appetite loss, which was caused by multiple factors (i.e. hot climate, initiation of cholinesterase inhibitor), and subsequent cessation of steroid-containing agent has triggered mild secondary adrenal insufficiency. We asked her family to fix a person in charge of her health and warned them to consult a specialist when symptomatic treatment is not effective.

**DISCUSSION**

We described an elderly woman on polypharmacy who developed appetite loss, muscle weakness and general fatigue from multiple factors, mainly secondary adrenal insufficiency caused by quitting one semiregular single-dose medicine. Reducing polypharmacy, even semiregular-use drugs, should be performed carefully (6, 7), especially when multiple prescribers are present.

The detection of ADRs becomes difficult if symptoms are like those of geriatric syndrome (1). Distinction becomes even more difficult if the symptoms are derived from semiregular-use medicines and if stopping the prescription is the cause. Adrenal insufficiency manifests symptoms that can be confused with geriatric syndrome or multimorbidity (8). Several reports of secondary adrenal insufficiency from the steroid-containing antihistamine exist in Japan. The present case report adds an important lesson for the management of PIMs.

**CONFLICT OF INTEREST STATEMENT**

None declared.

**FUNDING**

This study did not receive any external funding.

**ETHICAL APPROVAL**

As this is a case report, we did not obtain any ethical approval. Written informed consent was obtained.

**CONSENT**

Written permission was granted by the patient and the primary caregiver of the patient.

**GUARANTOR**

Naoki Tomita.
AUTHOR CONTRIBUTIONS
T. is responsible for patient diagnosis and care and manuscript preparation; A.I., S.O. and K.F. also helped with patient diagnosis and gave advice on the manuscript; and H.A. contributed with intellectual inputs, patient diagnosis and gave advice on the manuscript. All authors read the final version of the manuscript.

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