

THYROID

PP-T-01

THIONAMIDE-ASSOCIATED NECROTIZING AUTOIMMUNE MYOPATHY (NAM) IN GRAVES' DISEASE: A CASE REPORT

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CASE

Necrotizing Autoimmune Myopathy (NAM) has never been reported as a cause of myositis in thionamide-treated Graves' disease (GD). A 21-year-old Thai female presented with a 12-month history of palpitations. A diagnosis of GD was confirmed by elevated serum anti-TSH receptor antibody. Methimazole (MMI) 20 mg/day was started. Eleven weeks after therapy, she complained of generalized muscle pain. Elevated serum CK level at 791 U/L (<170) was found. MMI was switched to Propylthiouracil (PTU) 450 mg/day but serum CK level further rose to 2,538 U/L with worsening myalgia. Radioactive iodine (RAI) 30 mCi was given and she developed hypothyroidism at 9 weeks after treatment. She unexpectedly developed rhabdomyolysis (peak serum CK level at 13,084 U/L) while having a mild COVID-19 infection at 10 weeks after RAI. Finally, the diagnosis of NAM was established based on muscle biopsy. Our case highlighted NAM as an unusual cause of thionamide-associated myositis.

KEYWORDS

anti-thyroid drugs (ATDs), Thionamide, Necrotizing Autoimmune Myopathy (NAM), Graves'disease, Myositis

PP-T-02

EVALUATION OF LEARNING METHODS SIMILAR TO DEEP LEARNING AND DEVICE USING DEEP LEARNING FOR THE DIAGNOSIS OF THYROID NODULES

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INTRODUCTION

We recently developed a deep convolutional neural network algorithm (SEveRance Artificial intelligence program, SERA) using 13,560 ultrasound images of thyroid nodules labeled benign and malignant and this algorithm showed comparable diagnostic performance with experienced radiologists. We assessed whether the self-learning method similar to deep learning could be adapted for human learning as an ancillary approach to one-on-one education.

METHODOLOGY

Twenty-one internal medicine residents studied the "learning set" in three replicates which were composed of 3,000 images selected from 13,560 thyroid nodules and their diagnostic performances were evaluated before the study and after every learning session using the "test set" which was composed of 120 thyroid nodule images. The diagnostic performances of eight radiology residents were evaluated before and after one-on-one education using the same "test set". After final test, all readers once again evaluated the "test set" with the assistance of SERA.

RESULTS

Before the study, the mean area under the receiver operating characteristic (AUROC) of internal medicine residents was considerably lower than that of radiology residents (0.578 and 0.701, respectively). Diagnostic performance of internal medicine residents, although not as much as radiology residents who received one-on-one education (AUROC = 0.735), increased throughout the learning program (AUROC = 0.665, 0.689, and 0.709, respectively). All diagnostic performances of internal medicine and radiology residents were better with the assistance of SERA (AUROC 0.755 and 0.768, respectively).