

The interference of heterophile antibodies in free thyroxine immunoassay

Authors: Kate Tilley and Andrew Collier

Aims

This is a case report of a patient who presented with vague symptoms of headache, arthralgia and lethargy that prompted the general practitioner (GP) to acquire thyroid function tests. Both thyroxine (FT4) and thyroid-stimulating hormone (TSH) were shown to be raised. The patient presented with the symptoms of hypothyroidism, which did not fit the results of the blood tests. The aim of this case report is to raise awareness of the interference of heterophile antibodies in free thyroxine immunoassay.

Methods

The patient's initial referral to endocrinology via their GP was reviewed to understand history and examination findings. The patient had multiple consultations with an endocrinologist and these consultations were assessed using case notes. The notes showed the clinician's proposal to perform repeat blood tests to an alternative laboratory using a different immunoassay. The blood tests were accessed via portal system in Ayrshire and Arran and analysed.

Results

The repeat blood results from an alternative immunoassay showed a much lower level of T4, proving the patient to have hypothyroidism as per clinical suspicion and that heterophile antibodies had interfered in the FT4 immunoassay.

Conclusions

Many clinicians are unlikely to be aware of heterophile antibodies and how interference in immunoassays can lead to diagnostic errors and incorrect patient management. Therefore, it is important that both laboratory and medical staff are mindful of possible assay interference especially when the differential diagnosis is not consistent with the patient's clinical presentation. ■

Conflict of interest statement

None declared.

Authors: Emergency Medicine, Crosshouse Hospital, Kilmarnock, UK