Falsely Increased Thyroid-stimulating Hormone Concentrations attributable to Interference from Human Anti-mouse Antibodies

To the Editor:

We describe a case of a spurious increase in serum thyroid-stimulating hormone (TSH) attributed to a circulating human anti-mouse antibody (HAMA) in a two-site mouse monoclonal antibody-based assay.

A 71-year-old woman on long-term levothyroxine therapy was referred for investigation of uveitis. Her serum TSH had been maintained within the usual reference interval for more than a decade. The initial TSH value by an immunoassay method (assay A) on the Dimension RxL analyzer (Dade Behring) was 7.5 mIU/L (reference interval, 0.34–4.82 mIU/L). Because of this unexpected result, it was checked by another method (assay B), a two-site chemiluminescent immunometric assay (Third Generation TSH on the Dimension RxL). Several authors have proposed the addition of nonspecific animal immunoglobulins from the same species or from other species to prevent binding with HAMAs (5, 6). We understand that assay A has been reformulated with bovine gamma globulins. We retested the sample with the reformulated assay and obtained a value within the reference interval (0.34 mIU/L). We conclude that the presence of heterophilic antibodies should be considered when measured TSH concentrations are not compatible with either the clinical history or other thyroid function tests.

References


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Editor’s Note: The manufacturer declined to comment.

CA-125 Concentrations in PatientsAwaiting Cardiac Transplantation

To the Editor:

CA-125 (cancer antigen or carbohydrate antigen) is a high-molecular weight glycoprotein most appropriately used for monitoring treatment response and recurrence of ovarian carcinoma, with concentrations >35 units/mL indicating residual tumor. Serum concentrations have also been shown to correlate with ovarian tumor mass. Increases, although usually not as marked, have been seen in other conditions such as lung cancer, gastrointestinal cancer, abdominal miliary tuberculosis, endometriosis, pelvic inflammatory disease, and during ovulation in 1–2% of healthy women. Therefore, this serum marker is not recommended as a screening test for ovarian carcinoma (1–3).

Recently, at the University of Pennsylvania Medical Center, CA-125 was inadvertently ordered on a male heart failure (HF) patient awaiting cardiac transplantation, and was found to be markedly increased at 1060 units/mL. The test was repeated and confirmed the marked increase. The patient was also tested for human anti-mouse antibody (HAMA) to rule out possible interference causing a false-positive result. The results of the HAMA test were negative. The CA-125 concentrations decreased after transplantation with improvement in clinical status (538 units/mL). We analyzed multiple sections of the patient’s explanted native heart by use of immunohistochemical staining for CA-125 (1:50 dilution; positive control = ovarian adenocarcinoma; Dako) to determine the source of CA-125 production. No positive staining was