

False-positive human chorionic gonadotropin levels caused by a heterophile antibody with the immunoradiometric assay

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A case of a false-positive test for the β -subunit of human chorionic gonadotropin as performed by the immunoradiometric assay is described. Further studies revealed that this problem was secondary to a cross-reacting heterophile antibody. (AM J OBSTET GYNECOL 1988;158:99-100.)

Key words: False-positive human chorionic gonadotropin, heterophile antibodies, immunoradiometric assay

A case report is presented of a patient exhibiting a false-positive level of the β -subunit of human chorionic gonadotropin (β -hCG) as a result of heterophile antibodies. The type of assay used was an immunoradiometric assay that is thought to be superior to the radioimmunoassay by having less false-positive results. This case is believed to be the first demonstrating a false-positive hCG level with this immunoradiometric assay.

Case report

A 58-year-old woman treated with conjugated estrogens and medroxyprogesterone acetate on a cyclic basis suddenly failed to have a withdrawal menstrual period. A serum hCG test result was positive at 71 mIU/ml by an immunoradiometric assay.

The patient expressed a desire to continue the preg-

nancy, but when subsequent specimens drawn 3 and 5 days later yielded results of 59 and 70 mIU/ml, a spontaneous abortion was diagnosed and dilatation and evacuation were performed. However, there was no evidence of products of conception.

The serum specimens in question were sent to Serono Laboratories, Norwell, Mass. It was later reported to us that their testing suggested the presence of heterophile antibodies reacting with the mouse monoclonal antibodies in their tracer reagent.

Comment

The test kit, a two-site monoclonal immunoradiometric assay, measures both intact hCG and β -hCG. The kit has a high specificity with negligible cross-reactivity with other hormones. The manufacturer claims a sensitivity of <1 mIU/ml. However, a false-positive result could occur, and apparently did occur in this case, if endogenous antibodies directed against animal proteins in the serum of the patient react with the antibodies in the assay tracer. Officials at Serono Laboratories tried to alleviate this problem in this particular kit by adding other animal sera and other IgGs

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in excess to the tracer reagent, which should eliminate the effect of any patient heterophile antibody on the specific antibody in the assay. The Serono Laboratories' officials estimate that >1 million tests have been performed with this kit without a single incidence of this type of interference being reported to them before this patient's results were found.

Clinicians and laboratories have been warned in the past of false-positive hCG results, but these warnings were usually regarding results obtained with polyclonal radioimmunoassay kits and yielding values of <50 mIU/ml.^{1,2} In fact, it has been reported that a two-site monoclonal immunoradiometric assay is least likely to produce aberrant low-positive results.³ This case obviously points out that not only can this phenomenon occur in the newer technologies, it also can involve values significantly >50 mIU/ml.

Several approaches to dealing with discordant hCG results have been suggested.³ At least one of these, repeating the analysis on a specimen drawn at least 24 to 48 hours later, is a standard procedure in our practice

for patients with low-positive test findings. While a failure of the titer to increase by at least 50% could indicate a number of abnormal conditions, it could also indicate a possibly false-positive result. We would recommend, on the basis of our experience in this case, that the serum of patients whose β -hCG titers fail to increase as measured by immunoradiometric assay should be reassayed with a different method.

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