

Quality Assurance Study Examining the Utility of Extended Soaking of the β -HCG Cartridge in the Setting of Dilute Urine Samples

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ABSTRACT

Introduction: Women of child bearing age presenting with abdominal or pelvic pain, repeated nausea and vomiting, or syncope in the Emergency Department must be assessed for ectopic pregnancy. Unfortunately, in many cases, the initial urine sample on presentation may be too dilute to be considered accurate by urine hCG testing. In cases wherein urine specific gravity (SG) is <1.010 , drawing a serum β -HCG sample is advised. This can add considerably to a patient's overall length of stay. We evaluated a faster and more cost effective alternative to serum β -HCG testing through testing the sensitivity of extended soaking of the urine in the β -HCG cartridge. We also wished to assess the accuracy of the reported cut-off level of 1.010 that is in place presently.

Methods: In female patients (N=60) between the age of 12-50 found to have a urine SG ≤ 1.010 , 10 drops of urine were applied to the standard β -HCG Quickview® cartridge instead of the usual 3. If the test result remained negative, a further 10 drops were applied. The test results of applying 10 or 20 drops to the cartridge were compared to the results of applying 3 drops and serum hCG levels.

Results: Using serum β -hCG as the gold standard for detection of pregnancy, the extended soaking method was found to have a sensitivity of 60% and specificity of 98% in urine samples with a SG ≤ 1.010 . The sensitivity and specificity of the 10 drop method was 60% and 98% respectively, and 25% and 100% respectively for the 20 drop method.

Conclusion: The extended soaking method can occasionally catch a false negative result, but certainly can't rule out pregnancy as definitively as measuring serum β -HCG levels. In cases where urine specific gravity <1.010 , a serum β -HCG should still be drawn to rule out pregnancy.