Comparative study of home ovulation tests, including new dual-hormone test, to reference day of LH surge

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Introduction

• Many women have an inaccurate perception of when they ovulate, even when actively trying to conceive.
• Home ovulation tests are a popular and convenient way for women to time intercourse in order to facilitate a natural conception and they can assist with timing of artificial insemination.
• A variety of tests are available, which provide either a visual (line) or digital test result; however, it has been demonstrated that 1 in 4 women can interpret line tests incorrectly.
• LH surge detection agreed with the reference surge in 90% of cycles.

Background to dual-hormone test

As with other ovulation tests, the dual-hormone test detects the LH surge with ovulation predicted to occur the following day; the test terms these 2 days as PEAK fertility as they are the days when the chances of conception are highest. However, due to the ability of sperm to survive several days in the fertile cervical mucus that is present in the days before ovulation, conception is also possible up to 5 days before ovulation, as shown in the figure below from the study by Wilcox et al. 1

The rise in E3G typically occurs a few days before the LH surge, therefore by tracking this hormone, the new dual-hormone test is able to identify the additional days of HIGH fertility before the LH surge, where conception is possible. This is communicated in the following easy-to-understand format:

The architecture of the dual-hormone test, including its internal configuration is shown below.

Objective:

This study aimed to compare the accuracy of six home ovulation tests in detecting the LH surge and the number of days of fertility identified by each test.

Methods:

Complete menstrual cycles of daily urine samples were tested with two digital (A: First Response, B: Clearblue), three visual (A: First Response, B: Clearblue, C: Answer) and the dual-hormone digital test (Clearblue), in a random order by technicians blinded to the samples. The reference day of LH surge was determined by quantitative measurement of LH by AutoDELTA. The first day of testing was determined using the information from each test respective instruction leaflet. Only cycles where a surge was present, as detected by the reference method (n=87, each from a different woman), were analysed using the home tests.

Results

LH surge detection agreed with the reference surge in 80% of cycles using the dual-hormone test, which matched the highest detection level seen for any of the LH-only ovulation tests included in this study. The accuracy of surge detection, although high for all, varied between tests, as shown in the figure below, with a number of tests indicating a surge too early in some cycles, and several tests detecting the surge after ovulation (Digital A and Visual A and C). The dual-hormone tests gave the most accurate surge detection on the cycles tested.

The additional high days of fertility identified by the dual-hormone test also offers the added benefit of providing users with greater awareness of their wider fertile window.

Conclusions

• Home ovulation tests differ in their ability to detect the LH surge.
• This study found that the dual-hormone test produced results most in agreement with the reference surge day.
• Certain tests detected the surge too late in the cycle, after ovulation, when conception would not have been possible.

References


DECLARATION OF INTEREST

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