

Diagnosis and Treatment of the Cervical Factor.

II. Employment of Pelvic Sonography in Diagnosis

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ABSTRACT: A study was performed to evaluate the relationship between the postcoital test, follicle size, and the basal body temperature (BBT). We found 17% of the patients to have good postcoital tests before the rise in the BBT, at which time, however, the follicle was still too small. By the time the follicle reached maturity, the mucus quality regressed to poor. The problem was corrected in 88% of the patients by the human menopausal gonadotropin (hMG)-high-dose estrogen technique, and 53% achieved pregnancies. Twenty-two percent had a poor postcoital test just before the rise in the BBT. However, ultrasound data indicated that ovulation had already taken place, and the mucus had been of good quality a few days before, when the follicle was at the proper size. Thus, ultrasound may be useful in eliminating false positive and negative cervical factor diagnoses, and is also helpful in some new techniques for treating the cervical factor.

INTRODUCTION

MANY GYNECOLOGISTS AND FERTILITY specialists perform the postcoital test on the basis of the basal body temperature (BBT) in that they attempt to perform it just before the rise. We hypothesized that in some instances, a false positive or false negative diagnosis of cervical factor may be made. A woman who has a luteal phase deficiency or insensitivity to the thermogenic effects of progesterone may have already ovulated and secreted progesterone without a rise in the BBT. This would lead to a false diagnosis of a cervical factor problem.

Alternatively, a woman might have a premature

luteinization, with a rise in the BBT, and yet the postcoital test may have been satisfactory at a time when the follicle was immature. The physician would not realize, however, that the test was poor when a mature follicle was indeed reached.

Therefore, a study was initiated in which serial pelvic ultrasound examinations were performed with monitoring of follicular maturation and daily checking of the postcoital test.

MATERIALS AND METHODS

Daily ultrasound examinations for follicular maturation and postcoital tests were performed on 100

infertility patients beginning 17 days before the expected menses until release of the ovum was demonstrated. The BBT of each patient was followed, and a correlation test between follicle size, postcoital test, and BBT was made.

A certain percentage of patients were found to have good cervical mucus and a good postcoital test when the follicle was still immature, the mucus, however, being poor by the time follicular maturation was achieved. This group of patients was then treated with 5 mg conjugated estrogens on day 5 concomitantly with hMG, 75 IU for three days and 150 IU thereafter until an 18–24-mm follicle was achieved. Daily sonograms from day 12 were performed, as were postcoital tests. The percentage of improved postcoital tests and fertility rates were noted.

From this same group of patients we also attempted to find what percentage of patients who had the postcoital test performed just before the rise in the BBT might be falsely diagnosed as having a cervical factor problem. In these patients, the release of the ovum had already occurred at the time of the postcoital test, but there was a delay in the BBT rise.

RESULTS

Of the 100 patients studied to see the relationship between postcoital test, follicle size, and BBT, we found that 17 had good postcoital tests before the rise in BBT, although the follicle was still at an immature size. The mucus had regressed and the postcoital test became poor by the time the follicle reached maturity and was subsequently released. In these 17 patients, 15 (88%) had serum progesterone levels over 3 ng/mL at the time of attaining a mature follicle, and before release. The use of the high-dose estrogen–hMG technique^{1,2} resulted in a pregnancy rate of 53% (9 patients), and the problem was corrected in 88% (15 patients).

Twenty-two percent of the women would have been considered to have a cervical factor problem had the postcoital test been judged just before the rise in the BBT. However, daily postcoital tests and sonograms beginning several days before the rise indicated that ovulation had already occurred and thus the mucus had appropriately regressed. Serum progesterone levels were over 3 ng/mL despite the lack of rise at that time in the BBT in 91% of the

patients. A normal postcoital test—with a mature follicle—had been found several days before the rise.

DISCUSSION

Ultrasound monitoring of follicular maturation was found useful as an elimination test for patients considered to have cervical factor problems but, in reality, were seen after ovulation with appropriate regression in the mucus (22%). The reason for the delay in the BBT rise seemed to be secondary to either decreased sensitivity to the thermogenic effects of progesterone, requiring higher levels to cause a thermogenic shift, or to a luteal phase defect. Seven of 17 of such patients (41%) were found more than three days early on a timed endometrial biopsy performed in the late luteal phase.

Furthermore, sonographic monitoring of follicular maturation helped determine that some women considered to have good postcoital tests did in reality have a cervical factor problem, in that the mucus was satisfactory only while the follicle was immature. Thus, by the time the ovum was released from a mature follicle the mucus had regressed. The use of the high-dose estrogen–hMG technique corrected the problem in 88% of the cases, with 53% becoming pregnant. We feel that this technique corrects the problem by effectively suppressing pituitary gonadotropins and allowing the physician to be in control of follicular maturation through hMG therapy and ultrasound. Of course, other interpretations could be hypothesized.

Ultrasound monitoring of follicular maturation may be helpful in some cases of unexplained infertility by determining that a cervical factor problem actually does exist even though it seemingly had been excluded. This was determined by finding at the time of a mature follicle that the mucus was poor although previously it had been satisfactory. Furthermore, in contrast, judicious use of ultrasound can help prevent false diagnoses of cervical factor in some patients, who are then treated for the wrong problem and deflected from seeking other occult causes of infertility.

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