

A COMPARISON OF TWO PREGNANCY TESTS

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Recently developed pregnancy tests use immunological methods, one of which, the Prepuerin test, is used at this Institute. With the introduction of the much quicker Gravindex slide test, it was decided to compare the two tests, both of which depend on the detection of human chorionic gonadotrophin in the urine.

MATERIAL AND METHODS

Two hundred and fourteen specimens of urine received for routine pregnancy examination were tested independently by 2 different technicians using the Prepuerin and Gravindex methods. The former method has been described previously by one of us¹ and was performed in exactly the same manner as formerly. Once again, it must be emphasized that scrupulously clean glassware is essential. The Gravindex test was done according to the manufacturer's instructions, namely:

1. One drop of antigen is placed on a slide.
2. One drop of urine is added.
3. The two are mixed well and the slide gently rocked for 30 seconds.
4. Two drops of well-shaken antigen are added, the whole mixed and spread over an area approximately $1\frac{1}{4}$ in. in diameter.
5. The slide is gently and slowly rocked.
6. Agglutination is sought for no longer than 2 minutes. Positive and negative controls are set up.

Interpretation of Gravindex test: negative—agglutination within 2 minutes; positive—no agglutination within 2 minutes.

RESULTS

The results obtained in the 2 series are shown in Table I.

TABLE I. COMPARISON OF PREPUERIN AND GRAVINDEX TESTS

<i>Results obtained</i>	<i>Number</i>	<i>% of total</i>
1. Both tests negative	99	47.5
2. Both tests positive	93	44.5
3. Prepuerin negative, Gravindex positive	3	1.4
4. Prepuerin positive, Gravindex negative	10	4.7
5. Prepuerin positive, Gravindex doubtful	4	1.9
Total	209	

It will be seen from Table I that in 192 out of the 209 tests done (92.0%), the 2 tests agreed.

Clinical information was sought on the 17 cases (8.0%) where the results of the 2 tests did not tally. Group 3 was explained by 1 case of old, unrefrigerated urine, and 2 clinically undiagnosed cases (1 with enlarged uterus, pro-

bably not a pregnancy).

In group 4 early pregnancy and threatened abortion accounted for the discrepancy—the Prepuerin test is positive earlier in pregnancy than is the Gravindex test. If the tests were to be repeated 2 weeks later, both would probably be positive.

In group 5 it was impossible to interpret the Gravindex test. The 4 cases were pregnant.

DISCUSSION

It would appear, from the results obtained, that the Prepuerin test is only slightly more accurate than the Gravindex test, but the rapidity of the Gravindex test (2 minutes as opposed to 4-6 hours) would seem to be a point in its favour. However, while this investigation was being done, despite the fact that technically experienced people were performing the tests, the Gravindex slide test was found difficult to read. Although negative results were definite, positive results obtained were, one felt, sometimes open to doubt.

In an article published late last year² the advantages of the Gravindex test are stressed. Whereas the short time in which results are available is a great advantage, we feel that the reading of the test is too ambiguous. If the agglutinations were easier to read, some of the disadvantages of the Gravindex test would fall away.

The Prepuerin test is done in 3 dilutions, and when an attempt was made to use dilutions of urine in the Gravindex method, no correlation with the Prepuerin test was at all evident. In abortions and early pregnancy the Prepuerin test tends to be positive in lower dilutions, which sometimes proves of assistance in diagnosis. In cases of hydatidiform mole and chorion carcinoma a differential diagnosis can be made and treatment assessed using the Prepuerin test in high dilution, whereas the Gravindex test will not differentiate these cases from normal pregnancy. In medico-legal cases the more precise Prepuerin test is also preferable.

The fact that the Prepuerin test showed positive results earlier was also taken into account when the decision was taken not to discard the Prepuerin test in favour of the Gravindex slide test in this laboratory.

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REFERENCES

1. Politzer, W. M. (1963): *S. Afr. Med. J.*, **37**, 905.
2. Gibbs, C. C. J. (1965): *S. Afr. J. Obstet. Gynaec.*, **3**, 73.