Cytohormonal studies in recurrent abortion

by
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In the last years much research has been devoted to the study of abortion but our understanding of the processes involved has expanded little. The studies on hormone levels has been transformed by the new immunological techniques for assay of the three main estrogens, progesterone and HCG in urine, blood and other body fluids. Assays on blood are complicated and not all of them are of clinical value. On the other hand many workers ([1, 2]) have failed to find any significant difference in pregnanediol urinary excretion between patients who were going to abort and those who would carry their pregnancy to term.

For the urinary excretion of estrogens, mainly as estriol, its level in urine is complex being the outcome of both fetal and placental activity (fetoplacental unit). Therefore in the prognosis of abortion is helpful to see heither the output is rising or falling with time, mainly by serial estimations.

It has been suggested that to evaluate the endocrine balance during pregnancy have practical utility cytohormonal studies of smears from the vagina (colpocytogram) ([4, 5]) and the urinary tract (urocytogram) ([6]). Many workers have reported that estrogen environment alone results in high IK (Karyopiknotic Index), low intermediate cell count, little clumping, and a relatively clean background, and a high EI (Eosinophilic Index). Progesterone prevalence results in a low IK and EI, high intermediate cell count, clumping and a « dirty background ».

The purpose of this report is to present cytohormonal relationships between excretion patterns of estrogens and urinary tract cytology (urocytogram) in patients with habitual or recurrent abortion.

MATERIALS AND METHODS

We have study 20 patients with a history of two or more previous abortion « sine causa », by 10 weeks of pregnancy.

All patients were followed week-by-week with serial 24 hours urine collection for hormonal estimation and urinary tract smears for cytological determinations. The urine for urocytogram were obtained 24 and 48 hours after urinary collections for hormonal estimation to respect the same steroidal milieu.

The estrogens determination was by Brown's methods (« long » for total estrogens and « short » for estriol) and urinary tract smears (urocytogram) was with Lencioni's method ([3]). The smear was stained by the standard Papanicolau technique and the percentage of karyopyknotic cells per 250 cells counted determined the IK.

No values from a patient who aborted were included in the abortion mean if the hormonal and cytological determinations were made within a week of the onset of the abortion.

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RESULTS

The results are presented in the fig. 1 and fig. 2.

The fig. 1 shows the mean value week-by-week of the estrogens excretion of 9 patients who aborted as contrasted with 11 who carried the pregnancy to 30 weeks. In the second half of the fig. 1 is show the mean value week-by-week of the estriol excretion in the 11 patients non-aborters who carried the pregnancy beyond 30 weeks. For our laboratory these values are in normal average. In the first half of the fig. 1 are plotted the mean values of patients who aborted compared with that of patients with successful pregnancy (mean values ± standard deviation). There is a noteworthy overlap between the values among patients who aborted and who carried successful pregnancy. The mean estrogens excretion shows a different picture only from the 13-14 week and really expressive from the 15-16 week. All the patients who carried their pregnancy beyond 30 weeks have mean values of estrogens evidently increasing.

As results of urocytograms we have plotted the values of IK in the fig. 2. It can be seen that IK values are greater than 10 per cent in all patients who aborted already by 10 week. Afterwards the mean values have a steady increase. From the 14 week all the patients with elevated IK, who aborted, have depressed estrogens excretion.

The patients who carried their pregnancy beyond 30 weeks have mean values of IK decreasing below average 10 per cent.

COMMENT

Many workers have studied estriol and estrogens levels and staining properties of the exfoliated cells but particularly during the last trimester of pregnancy.

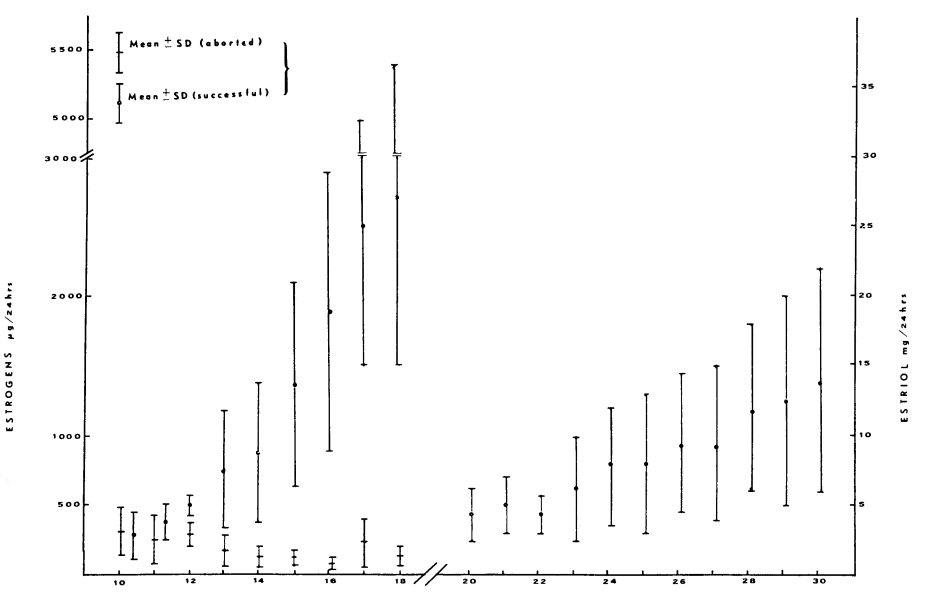

Fig. 1

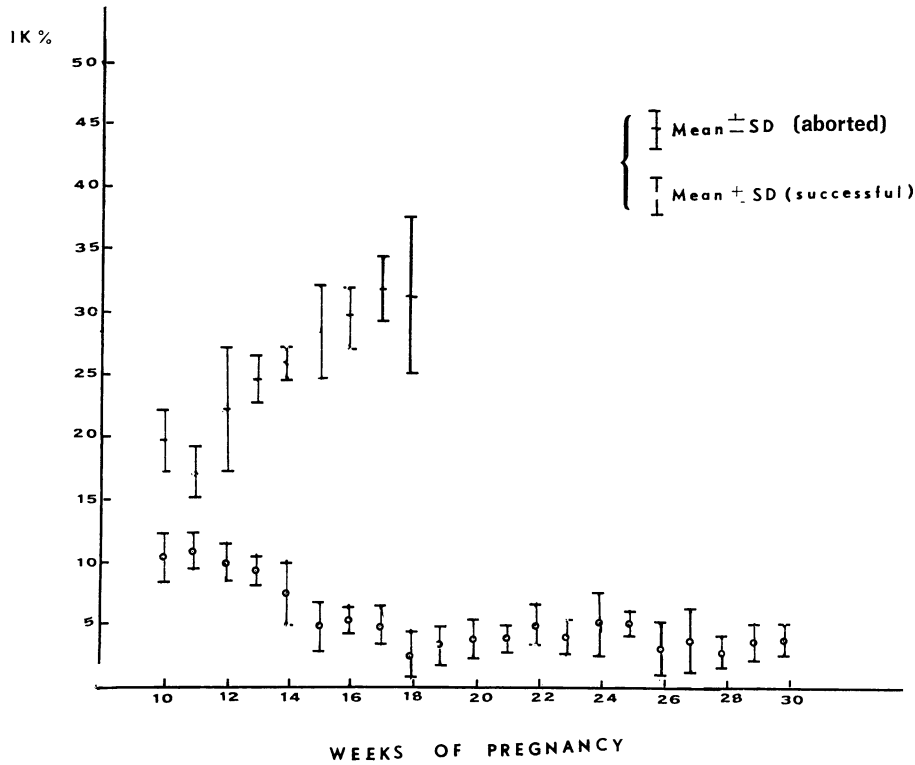

Fig. 2

The manner in which the maternal environment produce this changes in the exfoliated epitelium is complex and, for the most part, poorly understood. Today it can be assumed that they are caused by endocrine changes of fetoplacental unit too subtle to be picked up by our present methods of hormone assays. On the other hand even though estrogens assays have proved to be of great value as a guide to the clinical management of the pregnant patient, the interpretation of the estrogens value in various clinical condition, especially of the first and second trimester of pregnancy, has not been agreed upon by different workers in the field. Our results in recurrent abortion, in patients under circumstances of the most careful clinical categorization, show that in abortion estrogens levels are depressed compared with that of patients with successful pregnancy. This is really expressive from the 15-16 weeks. The study of urocytograms show that IK values are greater than 10 per cent in all patients who aborted and, from the 14 week, a parallelism in decrease with estrogens values. This support the opinion that when IK is elevated it carries with it about the same prognostic significance as a depressed estrogens excretion in patients with recurrent abortion. These interrelationships are moreover sustained by the look of complete poor smear (low clumping, high EI, high basal cells count) and, by our results, these are more precocious that estrogens depression. It is possible, perhaps, that cytohormonal changes occur as result of all maternal environment (estrogens, progestogens, androgens and other hormonal secretions) and then are more pre-

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cocious that changes of urinary excretion of total estrogens. Perhaps blood determination will shown changes even more precocious.

This report show a parallelism in decrease between urocytogram and total estrogens excretion in patients with recurrent abortion. The cytohormonal changes of urinary tract cytology are, with these results, more precocious that estrogens alterations and the Autors think that it is as result of all maternal hormonal milieu whose interrelationships can show themselves before of only estrogens determination.

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Functional platelet activity in pregnancy and the newborn period

by
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We studied platelet activity during normal pregnancy, including the peripheral platelet level, thromboplastin activity, platelet aggregation reactions with collagen, ADP, adrenalin and the adenine nucleotide level. In the newborn the studies also included investigation of the third platelet factor and the TGT (thromboplastin generation test).

Our case material consisted of 30 multipara in all three trimesters of normal pregnancy and 15 infants from these patients; the various functional characteristics of the platelets were examined in the infants at birth, and on the 8th and 20th day after birth.

The results obtained with the women in the first trimester were the same as those obtained with the non-pregnant patients of the same age who acted as controls (see graph 1).

The results obtained with the pregnant women in the second trimester showed an increase in the platelet count in the blood; acceleration of the thromboplastin formation curve (in 24 out 30 cases maximum thromboplastic activity at 4 min)

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