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LUTEAL PHASE INSUFFICIENCY : CORRELATION BETWEEN URINARY ESTROGEN PROFILE AND LUTEAL PLASMA PROGESTERONE

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Luteal phase defects are an important contributor (3% to 10%) to human infertility. Frequently, inappropriate patterns of pituitary gonadotropins and of estrogen secretion during the proliferative phase lead to abnormalities in the luteal function. The corpus luteum beeing the natural following of the follicle maturation, the urinary estrogen determination allowed us to establish the hypoestrogenia. Hypoestrogenia was detected in 29 of 30 infertile patients (96%) with a short or inadequate luteal phase who underwent luteal phase evaluation. We studied a group of 30 infertile patients in whom basal body temperature, urinary estrogens (from day 5 to day 27) and plasma levels of estradiol, 17 OH-progesterone (on day 11 to 17 and 19 to 24) were used to assess luteal function. Relative to a control group (17 women), the biological data showed a marked hypoestrogenia, mainly during the preovulatory and midluteal peaks. Luteal phase length and progesterone levels were lower than those in the control group. Moreover, urinary estrogen profile was found to be predictive of a luteal phase insufficiency.
It is concluded that the usefulness of urinary estrogen determination during the follicular and ovulation phases in the evaluation of luteal function is scanty and complementary to the progesterone determination.

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N. Mounib, J. Bringer, Ch. Sultan, B. Hedon, P. Cristol, N. Bressot and B. Descomps. INSERM U.58 (60 Rue de Navacelles, 34100 Montpellier), Service d'Endocrinologie et Maternité du CHR de Montpellier. ASSAY OF ESTROGENS BY BIOLUMINESCENCE IN SALIVA, PLASMA AND URINE : CORRELATIONS WITH FREE ESTRADIOL IN NORMAL AND FSH STIMULATED OVULATION. The development of a rapid specific and sensitive assay of estrone (E_1) and estradiol (E_2) by bioluminescence (1) gave the opportunity to study simultaneously salivary plasma and urinary estrogens. Plasma free estradiol determination was performed by a simplified equilibrium dialysis method. We evaluated follicule maturation by daily analysis of plasma E_2 (pE_2), plasma $E_1 + E_2$ ($pE_1 + E_2$), plasma free E_2 (pFE_2) salivary $E_1 + E_2$ ($sE_1 + E_2$) and urinary $E_1 + E_2$ ($uE_1 + E_2$) in six female volunteers and in 13 FSH stimulated women entering in the in vitro fertilization (IVF) program. The correlations were investigated between each pair of these parameters along the menstrual cycle. In spontaneous ovulatory cycles $sE_1 + E_2$ was highly correlated with plasma E_2 ($p < 0.001$), to a lesser extent with $pE_1 + E_2$ ($p < 0.05$) and poorly with the other parameters. Between $pE_1 + E_2$, pE_2 and $uE_1 + E_2$ the correlations were highly significant ($p < 0.001$) either in stimulated or in non stimulated women. In the FSH stimulated group $sE_1 + E_2$ was highly correlated with all other parameters. Our results show that $sE_1 + E_2$ is highly representative of the plasma free estrogen fraction in normal as well as in FSH stimulated cycles. In our experience of IVF the rapid determination of $E_1 + E_2$ in saliva or urine by bioluminescence appears to be as useful as plasma E_2 for evaluation of follicule maturation.

1 - Nicolas J.C., Boussioux A.M., Boularan A.M., Descomps B. and Crastes de Paulet A. Anal. Biochem. 135 (1983) 141-145.