affinity for progesterone. The binding property of the protein withstood heating at 60°C for 15 min. Similar proteins have now been detected during pregnancy in a further 7 hystricomorph rodents. The plasma concentration of PBG was determined by an adsorbent technique using Dextran-coated charcoal and the results were calculated by Scatchard plots. High affinity binding was undetectable in non-pregnant animals. During gestation it increased in guinea-pig and in cuis from about day 14, in casiragua and degu from about day 25, and in plains viscacha from about day 30. In these, and in a further 3 species, the protein had a high affinity for progesterone ($K_D$ 5–100 × $10^{-8}$ $M^1$). After incubation of pregnancy plasma with [$^3$H]-progesterone, disc gel electrophoresis was performed using 7% native polyacrylamide, pH 8.9. The relative mobility of a single major peak of radioactivity associated with plasma protein varied according to species (guinea-pig, 0.28; degu, 0.38; coypu, 0.58; plains viscacha, 0.66; casiragua, 0.70). When PBG was purified from plasma of pregnant guinea-pig and coypu by SP-Sephadex using 10 mM acetate buffer, pH 4.3, disc gel electrophoresis gave a diffuse protein band with a relative mobility of 0.28 (guinea-pig PBG) and 0.58 (coypu PBG).

The present research was supported by the CNR project: "Biology of Reproduction".

**37. Maternal plasma values of testosterone sulphate (TS) during normal pregnancy,** H. COHEN* and M. COHEN†, *Unité de Recherches Endocriniennes et Métaboliques chez l'enfant, INSERM-U34, Professeur J. Bertrand, Hôpital Debrousse, 29, rue Soeur Bouvier, 69322 Lyon, Cedex 1, and †Maternité de l'Hôpital de la Croix-Rousse, 93 Grande Rue de la Croix-Rousse, 69317 Lyon, Cedex 1, France

During human pregnancy testosterone is conjugated mainly by fetal adrenals and liver [3, 4] and transferred across the placenta without hydrolysis [2, 3]. TS in maternal plasma is considered as a fetal metabolite of testosterone and therefore a possible index of fetal viability. Some values of TS in pregnancy have been reported in the past [1] but no serial study has been done at the present time. TS was measured by a radioimmunoassay method. After ether extraction to eliminate unconjugated steroids and solvolysis, testosterone was separated from the other androgens by a celite column and measured by radioimmunoassay [4]. 200 samples of normal pregnant plasmas from 8 to 44 weeks of gestation have been studied.

Table 1. Values of TS during normal pregnancy

| Weeks of gestation | 8–12 | 20–24 | 28–32 | 32–36 | 36–40 | 40–44 |
|---|---|---|---|---|---|---|
| Mean value of TS ± 1 S.D. (ng/ml) | 1.96 ±0.61 | 2.92 ±0.88 | 2.88 ±1.92 | 3.45 ±2.94 | 5.63 ±3.67 | 7.53 ±4.30 |

Table 1 shows that maternal plasma values of TS increased very slowly until 32 weeks, a sharp rise was observed thereafter, since this value doubled between the 34th and the 42nd week of gestation. The next step will be the study of complicated pregnancies to evaluate whether TS levels could be a reliable index of fetal viability, particularly in the third trimester.

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**36. Adrenal response to ACTH in prepuberty,** A. R. GENAZZANI, C. PINTOR, F. FACCHINETTI, D. PARRINI, G. GARBONI and R. CORDA, Chair of Obstetrical and Gynecological Pathology and First Department of Pediatrics, University of Siena and Cagliari, Italy

On the basis of the well described modifications in plasma adrenal steroids throughout the prepubertal and pubertal stages, indicating the existence of an adrenal maturation in this period, the adrenal response to a single small dose of ACTH was studied in two groups of girls at stage P 0 (7–9 years) and P 1 (10–12 years) of sexual maturation. After a short period of suppression with DXM (2 mg) given 12 h previously, each subject (7 girls in each group) was submitted to acute stimulation with 1 U ACTH/sq.m body area, and blood samples were taken through an intravenous catheter prior to, and 5, 10, 20, 30, 60 and 120 min after ACTH. Each sample, as well as a basal sample collected 24 h previously, was assayed by direct RIA for cortisol (F), and after celite column chromatography for dehydroepiandrosterone (DHA), progesterone (P), 17 OH-progesterone (17 P), androstenedione (A), testosterone (T) and estradiol (E) were also measured by RIA. Group P 0 showed significantly lower basal levels of P, DHA, T and E than those found in P 1. All hormones decreased significantly after DXM, except T in both groups. After ACTH, the following responses were found: F rose in the same pattern and to the same concentrations in both groups. On the contrary, 17 P, P and DHA showed a faster rise in P 1, and reached values which were significantly higher than those in P 0. A, T and E all rose significantly after ACTH, with no significant differences between the two age groups. In conclusion, a significantly different response to ACTH was seen in the two groups of girls. This indicates that prepuberty is characterized by important changes in the adrenal cell population, which is however always responsive to ACTH stimulation. The factor responsible for these changes in the adrenal cells is still unknown.

**38. Spontaneous variations in steroid and proteic hormonal plasma levels in human pregnancy at term,** A. R. GENAZZANI, A. NASI, F. FACCHINETTI, M. DEMURTAS, D. PARRINI, F. MEDDA, N. D'ANTONA and P. FIORETTI, Chair of Obstetrical and Gynecological Pathology and Dept. of Obstetrics and Gynecology, University of Siena, and Dept. of Obstetrics and Gynecology, University of Cagliari, Italy

For a critical evaluation of the clinical significance of the individual steroid or proteic hormone assay to evaluate the foeto-placental condition, spontaneous fluctuations of several hormones were checked in the plasma of near-term pregnancies. Twelve blood samples were taken from each subject, through polyethylene catheters inserted in the humeral vein, every 5, 15 or 30 min (6 subjects in each group). Each plasma sample was measured by RIA (using the antisera reported in brackets) for levels of: HCG (Biodata), HCS (Cea-Ire-Sorin), estradiol ($E_2$: Biodata), estriol