The correlation coefficient between 15α-hydroxy-oestriol and its epimer was 0·88 and with total oestrogens determined by the Kober reaction, 0·69, while that with 18-hydroxy-oestriol was −0·03. The poor correlation between 18-hydroxy-oestriol and 15α-hydroxy-oestriol may signify an important difference in the pathways of their production. Measurement of 18-hydroxy-oestriol may prove to be of more clinical significance in pregnancy monitoring that 15α-hydroxy-oestriol has so far proved to be .

47. Plasma levels of estriol, estradiol-17β, progesterone, 17-hydroxy-progesterone and prostaglandins-$F_{1\alpha}$ and $F_{2\alpha}$ in pregnant women near term, S. DELL'ACQUA, A. MONTEMURRO, A. LUCISANO, C. PATRONO, D. GROSSI-BELLONI, E. PARLATI, B. CINQUE, E. ARNO and A. BOMPIANI, Instituto di Clinica Ostetrica e Ginecologica e Istituto di Farmacologia, Università Cattolica del S. Cuore, Roma, Italia

It is still not clear whether the levels of circulating progestins and estrogens in late pregnancy can influence the beginning of labour. The purpose of the present investigation was to determine the plasma levels of these steroids in normal pregnant women near term through a serial sampling and to correlate them with the plasma levels of prostaglandins-$F_{1\alpha}$ and -$F_{2\alpha}$. In a group of normal pregnant women plasma samples have been collected every 24 h at 38th week of gestation, every 12 h at 39th week of gestation and then every 6 h until labour began. Prostaglandins-$F_{1\alpha}$ and -$F_{2\alpha}$ and estriol, estradiol-17β, progesterone and 17-hydroxy-progesterone in free form have been measured in plasma samples by means of specific RIA.

From the analysis of the profiles obtained and the ratiòs between the different compounds studied we could not demonstrate any significant variation in the steroids and prostaglandins plasma levels before the beginning of labour.

48. Effect of ACTH administration into the fetus, on onset of labour and on maternal plasma steroid levels, O. GAMISSANS, E. DAVI, E. PEREZ-PICAÑOL, P. PUGOL-AMAT and G. R. WILSON, Department of Obstetrics and Gynaecology, School of Medecine, Universities of Barcelona (Spain) and Aberdeen (Scotland)

In a previous study (Gamissans *et al.*, Acta Endocrinologica Congress, Amsterdam, 1975) it was shown that the intraamniotic injection of β-metasone (20 mg) is ineffective in precipitating the onset of labour in humans. However, the following modifications in maternal serum steroid levels were found as a result of the corticosteroid administration: a decrease in total immunoreactive oestrogens and of unconjugated estriol. In an attempt to study further the role of the fetal adrenal gland on the mechanisms of onset of labour, synthetic ACTH (Synacthen depot 1 mg) has been injected into the fetal breech, in a group of nine pregnant women at 38–41 weeks. In a control group of eight pregnant patients, 1 ml of isotonic saline was also injected into the fetal breech. In all patients blood samples were taken daily, for two before injection into the fetus, until delivery. Injection-delivery interval and blood pH of umbilical vessels at delivery were recorded. Maternal serum progesterone, total immunoreactive oestrogens, unconjugated oestriol and oestradiol-17-β were measured by R.I.A. The results did not show any significant difference between treated and control groups recording injection-delivery interval, and umbilical artery and vein pH at delivery. Maternal serum total immunoreactive oestrogens and progesterone levels did not show, after ACTH injection, a different pattern than that observed in the control group. Results on unconjugated oestriol and oestradiol-17-β will also be presented. The ACTH injection into the fetus has no influence on the onset of labour in the conditions and dose level used in this study.

49. Monitoring of foetal well-being by the determination of estriol-16α-glucuronide in urine and plasma, HERMAN ADLERCREUTZ, TESSA LEHTINEN and KATARINA BIRATH, Department of Clinical Chemistry, University of Helsinki, Meilahti Hospital, SF-00290 Helsinki 29, Finland

A rapid and specific radioimmunological method for the assay, in pregnancy, of estriol-16α-glucuronide in urine and plasma has been developed. No extraction or purification is necessary. Antisera to estriol-16α-glucuronide, raised in two sheep and coupled to Sepharose particles, showed good specificity. Both antisera cross-reacted less than 4% with unconjugated estradiol and estriol, and less than 1% with unconjugated estrone. When tested against a number of conjugated estrogens, the antisera cross-reacted less than 1% with all except one. The exception was 17-epiestriol-16-α-glucuronide with which one antiserum cross-reacted about 17% and the other not at all. The method calls for samples of plasma to be diluted, 1:100 (v/v), samples of urine, 1:5000–100,000. Antibody diluted to give a 20% binding in the absence of unlabelled steroid, is added, and the samples are incubated while gently rotated for 30 min at room temperature. [^{3}H]-estriol-16α-glucuronide in buffer is added and incubation is continued for 1·5 h at room temperature and, while the tubes are still rotated, for 1 h at +4°C. After centrifugation the particles are washed three times with saline. Radioactivity, released from the particles by shaking with 1 M HCl, is then counted. This step enhances the sensitivity of the method 40-fold as compared to a direct counting of the particles. The coefficient of variation calculated from 30 duplicate urine samples was 8·7%. The limit of detection is 10 pg. Some preliminary data indicate that the day-to-day variation in urinary output of estriol-16α-glucuronide is about 7 to 13% and is hence smaller than that reported for total estriol. Preliminary clinical results suggest that, because of this smaller variation, the determination of estriol-16α-glucuronide is more useful than the measurement of total estriol in monitoring of foetal well-being. The results obtained with this method correlated well with those obtained with a

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Structure	Mean mg/24h	Range mg/24h	No.
Oestratriene-3,15ξ,16ξ,17ξ-tetrol	0·74	0·3 –3·0	20
Oestratriene-3,15α,16α,17β-tetrol	1·69	0·75–4·1	20
Oestratriene-3,16ξ,17ξ,18-tetrol	0·39	0·2 –1·5	20
3, 15ξ,16ξ-trihydroxy oestratriene-17-one	0·08	0·05–0·10	3
3,16ξ, 18-trihydroxy oestratriene-17-one	0·07	0·05–0·10	3