**202** Uterine artery pulsatility index in pregnant ewes and pregnancy-induced hypertensive women. H.Ochi*,T.Kira,Y.Inoue,H.Suginami,S.Matsuura. *Kira Hosp., and Dept.Obstet-Gynecol., Ehime Univ.Sch.Med., Ehime.
Uterine artery pulsatility index (UtA-PI) was analyzed experimentally in pregnant ewes and clinically in pregnant women with and without pregnancy-induced hypertension (PIH). I) The ascending uterine artery of Day 110-130 pregnant ewes was equipped with an electromagnetic flowmeter and a pulsed Doppler apparatus, and, then, infused with graded doses of Gelfoam. UtA-PI, uterine blood flow (UBF), blood pressure, pulse rate and cardiac output were measured during the Gelfoam infusion. UBF deceased and UtA-PI increased dependently on the doses of Gelfoam, while the other parameters measured were unchanged. This indicates that UtA-PI is an index representing uterine circulation resistance. II) UtA-PI, fetal aorta peak velocity (f-AoPV) and umbilical artery pulsatility index (UAPI) were measured in 75 and 14 pregnant women with and without PIH, respectively. Five of the 14 PIH women showed UtA-PIs more than the 95 percentile in normal pregnant women. All the fetuses in women with elevated UtA-PIs had elevated UAPIs, and two of them were with decreased f-AoPVs. The prognosis of these two was exceedingly poor. UtA-PI, as an indicator of uterine circulation resistance, predicts fetal well-being and outcome.

**203** Use of Doppler fetal blood flow patterns in the prediction of fetal distress. R.Tsujimura, S.Morinaga, O.Hirata, K.Koike, Dept.Obst.and Gynec. Nagoya City Johoku Hosp. The present study was carried out to test whether Analysis of fetal blood flow patterns could predict fetal distress earlier than traditional CTG monitoring system. The PI and RI values of fetal middle cerebral artery(MCA), the descending aorta(Abd.A) and the umbilical artery (UA) were measured in: 1) 270 AFD fetuses who had normal CTG during labor and all resulted in normal spontaneous delivery; and 2) 42 patients( AFD 32 cases, IUGR 10 cases) who later had abnormal CTG suggesting fetal distress and resulted in emergency termination of pregnancy. Using the above data, a mathematical model as well as a scoring system(FDI) was derived, which had a sensitivity of 83 %, a specificity 100 % and a diagnostic accuracy 95.8 % within 7 days of the date of examination. This scoring system could possibly predict fetal distress as early as 11 days before CTG monitoring. High FDI scores were seen in both AFD and IUGR distress groupes. The latter was significantly higher than the former.

**204** Blood flow characteristics in the middle cerebral artery in normal and growth-retarded human fetuses. S.Satoh,T.Koyanagi*,T.Yoshizato,H.Nakano, Dept. Gynec. and Obst., Kyushu Univ.,Fukuoka, *Maternity and Perinatal Care Unit, Kyushu Univ., Fukuoka.
To clarify the developmental and pathological change of cerebral circulation in the human fetus, flow velocity in the middle cerebral artery (MCA) was studied, using color Doppler method. 159 fetuses between 20 and 40 weeks of gestation were studied, of which 148 showed normal growth and 11 were growth-retarded(IUGR). We recorded flow velocity in the MCA, from which peak-systolic(PSV), end-diastolic(EDV), mean velocity(MV) and Resistance Index(RI) were calculated. In normal fetuses, PSV and MV significantly increased from 20 to 40 weeks, whereas EDV increased after 28-31 weeks. RI increased between 20-23 and 24-27 weeks and decreased between 32-35 and 36-40 weeks. In the 11 IUGR cases, 6 with a reactive fetal heart rate(FHR) pattern on the cardiotocogram(CTG) had PSVs, EDVs, MVs and RIs within ±2 standard deviation(SD). However, 5 cases with non-reactive FHR pattern or fetal distress on CTG had PSVs, EDVs and MVs above the mean+2SD and RIs below the mean-2SD. Our results suggest that cerebral flow velocity increases with advancing gestation, in response to the increase in vascular beds. In IUGR cases with abnormal CTG findings, blood flow is suggested to increase, corresponding to decreases in cerebral vascular resistance.