

150 Urinary calcium excretion in pregnant women with pregnancy induced hypertension (PIH). Y. Suzuki, Y. Hayashi, I. Murakami, Y. Yamauchi, Y. Yagami, Dept. Obst. and Gynec., Nagoya City Univ. Sch. Med., Nagoya.

Two hundred forty-nine normotensive pregnant women on 36 weeks of gestation and 38 pregnant women with PIH underwent an urine evaluation for calcium excretion (calcium/creatinine ratio). The urinary calcium/creatinine ratio of pregnant women with PIH was significantly lower than that of normotensive pregnant women. Especially, it was low on the group of primiparous women without family history of hypertension. Three hundred forty-eight normotensive pregnant women on 24 weeks of gestation underwent the urine evaluation for calcium/creatinine ratio for predicting the development of PIH. On the group of primiparous women without family history, 58% of them with low calcium/creatinine ratio subsequently developed into PIH. With use of the receiver operator curve, the calcium/creatinine ratio threshold value of 0.06 was chosen as prediction for the development of PIH. Analysis of an urinary calcium/creatinine ratio may be useful for predicting the subsequent development of PIH in primiparous women.

151 Effect of ritodrine hydrochloride on uterine and umbilical blood flow during pregnancy. T. Kumazawa, Y. Hada, S. Oohigashi, H. Saito, T. Yanaihara, Dept. Obst. and Gynec., Showa Univ. Sch. Med., Tokyo

To study the effect of ritodrine on uterine and umbilical blood flow, 18 pregnant women with premature uterine contractions (25~36 weeks of gestation) and 5 cases of pregnancy toxemia with IUGR (29~36 weeks of gestation) were treated with intravenous infusions of ritodrine. The uterine and umbilical blood flow were measured before and 1 hour after ritodrine administration with 2-D color doppler system (TOSHIBA SSA-270A). Plasma concentrations of ritodrine were measured by HPLC. There was no significant change in maternal blood pressure, but increments of maternal and fetal heart rate were seen. Resistance index (RI) of uterine and umbilical arteries in women with premature uterine contractions were significantly decreased, and RI of umbilical artery in pregnancy toxemia with IUGR was also decreased significantly. Although RI of umbilical artery in all cases of pregnancy toxemia with IUGR showed higher RI, RI in 4 cases were improved to normal range by ritodrine administration. Correlation between RI of umbilical artery and plasma concentration of ritodrine was found. These results indicated that ritodrine administration was a effective therapy for IUGR to improve uteroplacental blood flow.

152 How should a pregnant woman do sports?

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One hundred and eighteen women between 16 and 39 weeks' gestation exercised using bicycle ergometer. We studied the electrocardiogram, blood pressure, oxygen consumption, maternal and fetal heart rate (FHR) and uterine contraction at rest, during and after exercise.

The mean maternal heart rate and blood pressure were increased to 164 bpm and 158/83 mmHg, respectively, at maximal exercise. After the exercise there was no adverse effect on pregnant women but 12 cases (10.2%) showed abnormal FHR pattern. The abnormal FHR patterns were observed when oxygen consumption and maternal heart rate in exercise exceeded the each limits, 20 ml/kg/min and 150 bpm, respectively. The greater the oxygen consumption and the maternal heart rate, the higher the rate of abnormal FHR pattern. Intensity of the exercise as expressed METS (metabolic equivalents) was significantly correlated to the maternal heart rate.

These results show that the maternal heart rate, which is very simple to measure, should not exceed 150 bpm at maximal exercise during pregnancy.