

211 Effect of β_2 -adrenergic agonist (ritodrine) on fetal hepatocyte proliferation in primary culture. H.Ando, Y.Ohno, S.Nomura, H.Yagami, O.Kurauchi, M.Kasugai, S.Goto, S.Mizutani, Y.Tomoda, Dept.Obst.and Gynec., Nagoya Univ.Sch.Med., Nagoya.

Ritodrine enhanced DNA synthesis of fetal rat and human hepatocytes in primary culture. Isolated hepatocytes were maintained for 24hr, and the action of ritodrine on DNA synthesis was studied by ^3H -thymidine incorporation for the following 24hr without added serum or growth factors. In these culture conditions DNA synthesis increased with increase in ritodrine concentration (10^{-8}M - 10^{-4}M). Propranolol antagonized this effect. EGF promoted enhanced DNA synthesis in the presence of ritodrine. Hepatocytes from adult rats of 4 weeks old did not exhibit increased sensitivity to ritodrine stimulation. These results suggest that ritodrine may promote growth of fetal liver in rat and human by stimulation of DNA synthesis.

212 Effect of IGF-I on amino acid and glucose transport by cultured trophoblast cells. T.Mimuro, M.Iwashita*, T.Adachi, D.Yoshii, Y.Shobu, M.Kobayashi, Y.Takeda, S.Sakamoto*, Dept.Obst.and Gynec., *Maternal and Perinatal Center, Tokyo Women's Medical College, Tokyo.

Effect of IGF-I on nutrients transfer in the placenta was studied. Trophoblast cells were incubated with various concentrations of IGF-I for 3 hr. After incubation, cells were further incubated with 1 μCi of ^3H -glycine or ^3H -2-deoxy-D-glucose for indicated times. Reaction was terminated by washing cells and radioactivity in cells was measured after solubilization of cells by 0.5M HCl. ^3H -glycine uptake was significantly stimulated at 15 min after addition of ^3H -glycine uptake and maximum uptake of 1.52-fold of control was observed at 30 min incubation. In dose response study, 10^{-10}M IGF-I significantly increased ^3H -glycine uptake at 15 min incubation and maximum uptake was observed at a concentration of $5 \times 10^{-9}\text{M}$ with ED50 of $3 \times 10^{-10}\text{M}$. Similarly, IGF-I stimulated ^3H -2-deoxy-D-glucose uptake by trophoblast cells. 10^{-7}M IGF-I significantly stimulated glucose uptake at 15 min incubation and maximum uptake was observed at 30 min incubation that was 1.7-fold of control. These result suggest that maternal IGF-I may be useful for placental active transport of nutrients to the fetus and thereby influence fetal growth.

213 Effect of maternally administered magnesium sulfate on the neonate. Y.Nakamura, S.Ibara, T.Ikenoue, Perinatal Medical Center, Kagoshima Municipal Hosp., Kagoshima.

Fifty eight premature labor or pre-eclamptic mothers were treated with MgSO_4 and their newborn infants were studied retrospectively to determine the clinical effects of maternally administered magnesium sulfate. Mothers received 4 gm MgSO_4 for 30 minutes as loading dose, and maintenance dose was 1.0 to 2.5 gm MgSO_4 /hour. Serum levels of magnesium was measured in serial samples of maternal blood and umbilical blood at delivery. Serum levels of magnesium were measured in serial samples of neonatal blood until decrease to normal range after delivery. There was significant correlation ($r=0.82$) between maternal serum magnesium levels and that of cord blood. But there was not significant correlation ($r=0.58$) between cord blood magnesium levels and its normalizing time. On the other hand there was significant correlation ($r=0.78$) between total dose of magnesium given to the mother and normalizing time of serum magnesium level of the neonate. In regard of the relationship the incidence of ileus and serum magnesium level of cord blood, there was no significance. But there was significance concerning about total dose of magnesium given to mother between ileus group ($490 \pm 385\text{g}$) and non ileus group ($85 \pm 67\text{g}$) in premature infants less than 34 weeks gestation ($P<0.05$). It is suggested that total dose of magnesium given to the mother should be checked to prevent the ileus in premature infants.