

In conclusion, transforming the respiratory wave with frequency analysis, we have developed the new monitoring by which we can evaluate the neonatal respiratory adaptation of very low birth weight infant with respiratory distress.

121. The Incidence of Fetuses with Chromosome Anomalies on 1,249 Cases of Prenatal Detections by Using Mid-trimester Amniocentesis

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From January 1974 to September 1987, 1,249 pregnancies were investigated by mid-trimester amniocentesis for potential chromosome aberration.

Chromosome anomalies were disclosed in 43 fetuses ($43/1,249=3.4\%$), including trisomy-21 (8 cases), trisomy-18 (1), XXY (2), XXX (2), 69, XXX (1), unbalanced translocation (6) and balanced translocation (23).

The incidence of affected fetuses was 0.65 per cent when the mother's age was 34 years or less and 1.69 per cent when the mother's age was 35 years or more. Furthermore it elevated to 3.45 per cent in mothers aged 40 years or more. The recurrence risk of de novo 21-trisomy was 0.47 per cent in mothers aged ≤ 34 years, and 2.63 per cent in mothers aged ≥ 35 years. The segregation ratio in mothers who had D/21 balanced translocation was 3:6:1=normal:balanced:unbalanced, and the incidence of 21-trisomy was similar to that of newborns from mothers with D/21 translocation. Although overall rate of affected fetuses from mothers with reciprocal translocation was 18.2 per cent, the recurrence rate was 33.3 per cent from mothers having a affected child in this group.

122. A Case of Intra-uterine Parvovirus Infection Associated with Hydrops Fetalis

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Various causes of NIHF were reported. But outcome of fetuses is extremely poor because of idio-

pathic fetal condition. TORCH syndrome is popular as cause of infection. Recently Parvovirus which induce fifth disease or crisis of sickle cell disease is found remarkably as new virus of NIHF. Now we have reported NIHF case caused by HPV and confirmed HPV DNA in fetal organ. A 25 years old pregnant admitted because of fetal ascites remarked by first level ultrasonographic examination at the 23 weeks of gestation. Third level ultrasonographic examination showed severe pleural effusion, subcutaneous edema and placental megaly but no organic anomalies. On maternal sera examination alpha-fetoprotein is elevated and coombs'-test is negative in all blood type. HPV IgG IgM antibodies level developed. At 25 weeks gestation pregnancy was terminated in the IUFD. On microscopic finding of autopsy species, liver and placenta showed an increased proportion of erythropoietic cells, in which the nucleus revealed a glassy homogeneous eosinophilic change with peripheral condensation of chromatin. By dot-hybridization studies using 32 P-labeled HPV DNA probes, DNA extracted from fetus tissue was found to contain parvovirus sequences. This case has proposed that HPV antibody level in maternal must be examined to prevent or confirm nonimmunological hydrops fetalis.

123. A Case of the Prenatally Cured Hydrops Fetalis Due to Twin to Twin Transfusion Syndrome

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The prognosis of twin to twin transfusion syndrome (TTTS) is poor because of hydrops fetalis and hydrops fetalis. We report a case of the prenatally cured hydrops fetalis due to TTTS.

The patient was a 31-year-old woman, blood type A, Rh-positive. At 23 weeks' gestation, ultrasound examination showed a considerable difference of BPD (8 mm) between twins and revealed that the larger fetus was hydrops fetalis with ascites. Twins were male and had no signs of fetal malformation. Because of the incomplete tocolysis, three amniocentesis were performed in 24 weeks. An ultrasound-guided blood sampling from the umbilical vein of larger fetus was performed. The fetal blood type was A, Rh-positive with a negative direct Coombs' test. According to these findings, it is considered that the

cause of hydrops was the heart failure of recipient fetus in TTTS. Transplacental digitalization was begun at 25 weeks. At 30 weeks, the dosage of digoxin was up to 0.375 mg/day, then the ascites of hydrops fetalis was gradually decreased and absent at 33 weeks. A cesarean section for PROM and fetal distress was performed at 33 weeks and two healthy male infants (2,540 g and 2,200 g) were delivered with a monochorionic placenta.

Thus, we concluded that the improvement of hydrops fetalis and the correction of discordant twins was made by the intrauterine treatment.

124. The Distribution of Adrenergic Fibers in the Human Umbilical Cord and its Evidence by Electron Microscopy

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Though umbilical blood flow is extremely important for fetal growth, its neural regulation is not generally accepted because of no innervation of the umbilical vessels. We examined the presence or absence of adrenergic nerves, and proved the presence neurohistochemically and electron microscopically.

Twenty-one human normal full term umbilical cords were examined. Whole cross-sections were collected from various parts of the cord. To visualize biogenic catecholamine, FAGLUPAGAS method, a new modification of the glyoxylic acid (GA) method, was used.

The fluorescent fibers formed dense perivascular nerve plexus around the both umbilical arteries and numerous fibers were observed in Wharton's jelly. But entirely no fibers were observed around the umbilical vein. The fluorescent fibers were proved catecholaminergic by the findings that the fluorescence was disappeared by sodium borohydride reduction and was regenerated by GA. Furthermore they were proved adrenergic nerves by electron microscopic findings of numerous axons containing dense granular vesicles in Schwann cell. As the distance from fetus increased, adrenergic fibers disappeared from the cord. Their distribution expressed as a percentage of the length of the portion of the cord which contained adrenergic fibers to the total length was $9.2 \pm 2.7\%$ (Mean \pm SD).

These findings indicate that the umbilical blood flow is regulated neurally.

This is the first evidence by electron microscopy in

the world of the nerve fibers in the human umbilical cord.

125. Effect of β_2 -stimulant on Umbilical and Uterine Arterial Blood Flow

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To evaluate the effect of β_2 -stimulant on umbilical (UMA) and uterine (UTA) arteries, (1) 12 pregnant women (24~40 weeks) with terbutaline (i.m.) and (2) 3 pregnant women (24~32 weeks) with ritodrine (i.v.) were examined by Doppler ultrasound equipment. The indices used to analyze the waveforms were S/D ratio and Pulsatility Index (PI).

(1) Thirty minutes after terbutaline injection, S/D ratio and PI of UMA and UTA were markedly reduced. (2) The measurement was performed at 4 times (before, 2, 6, 24 hours). The indices of UMA and UTA were reduced in 2, 6 hours. On the other hand, incubated experiment of placental tissue with β_2 -stimulant was performed to evaluate the mechanism of its effect and then 6-keto PGF_{1 α} was increased and TXB₂ was decreased.

In this study, it was suggested that the decrease in the indices of UMA and UTA indicated the decrease of the peripheral resistance in the fetoplacental circulation and the improvement of its blood flow. This effect of β_2 -stimulant was thought to be caused by increase of prostacyclin and decrease of thromboxane A₂ in placental tissue.

126. Relationship between the Patterns of FHR and the pH Value of Umbilical Artery in the Late Period of Labor

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The relationship between the patterns of FHR and the pH values of umbilical artery was investigated in total 593 cases who had continuous monitoring during the labor. The neonatal asphyxia was diagnosed in 73 cases (23.3%) whose pH value was