113. Glucocolticoid Receptor in the Rabbit Fetal Lung: Cytoplasmic to Nuclear Translocation at Different Stages of Development

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Dexamethasone, administrated to rabbit fetuses earlier than 25 days of gestation, caused precocious appearance of pulmonary surfactant in amniotic fluid. But dexamethasone, administrated after 25 days of gestation, had no effect on accelerated appearance of surfactant.

The concentration of cytoplasmic glucocorticoid receptor in the lungs of developing rabbit fetuses remained at constant level from 23 days of gestation to the end of gestation. And the amount of nuclear receptor in the lungs of developing rabbit fetuses increased gradually from 23 days to term. Dexamethasone, administrated to rabbit fetuses earlier than 26 days of gestation, could cause a depletion of cytoplasmic glucocorticoid binding sites in the lungs followed by the movement of sites to the nucleus. But when dexamethasone was administrated after 26 days of gestation, dexamethasone cytosol receptor complexes did not move to the nucleus.

These data indicate that the amount of glucocorticoid cytoplasmic and nuclear receptor in the lung is not the limiting factor in the development of fetal-lung responsiveness to administrated glucocorticoids and that after 26 days of gestation, fetal-lung responsiveness to glucocorticoids may be limited by the disturbance of translocation of glucocorticoid cytosol receptor complexes to the nucleus.

114. Autoradiographic Studies on Cellular Uptake of Exogenous l-DOPA and its Fate in Foetal, Newborn and Adult Mice

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Fifty μCi/gbw of the ^{3}H-DOPA was injected intraperitoneally in one female mouse of the 15th day of pregnancy, one newborn mouse of the 2nd day old and five adult mice. They were perfusion-fixed with 2.5% glutaraldehyde from 30 min. to 24 hrs. after injection.

And the visceral organs, placenta and fetuses are sliced according to the usual procedure in electron microscopy.

Sectins were processed for autoradiography using dipping method. Cells of fetuses and newborns which incorporate considerable amount of DOPA could be classified into 4 groups as follows;

i) Endocrine cells which belong to paraneuron,
ii) Neurogenic cells,
iii) Cells actively synthesizing protein, but neither neural nor endocrine, and
iv) Cells, incorporating small amount of DOPA when they become adult.

The isotope distribution showed almost similar pattern between fetuses and mother.

So it was supposed that DOPA passed through the placenta without modified.

115. Chromosomal Anomalies in Induced and Spontaneous Abortion

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The karyotype of 1000 induced abortuses and 340 spontaneous abortuses were determined. Chromosomal anomalies were detected in induced abortuses (4.9%). Among the former, 71.4% of abnormal karyotypes were trisomic, 10.2% X-monosomic, 8.2% double trisomic, 8.2% polyploid and 2.0% mosaic.

In the latter, 50.6% were trisomic, 23.8% polyploid, 17.5% X-monosomic, 0.6% 21-monosomic and 0.6% mosaic.

Examples of autosomal trisomy except 1-,6-, and 12-trisomy were identified with Giemsa banding technique in both induced and spontaneous cases.

The frequency of chromosomal abnormality among induced abortuses tended to be high when maternal age was 35 years and over.

116. Etiological Observation of the

Anencephaly in Special Reference to Double Infections with Both Cytomegalovirus(CMV) and Coxsackieviruses(Cox)

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It had been suggested by our previous observations that the double infections with both CMV and Cox (B-5 and B-4) may possibly play an important role as the causal agent in occurrence of anencephaly.

Here, we have further studies the distribution of antibodies against CMV and Cox between normal pregnant women and patients deliveried of anencephalic infants.

In addition to them, dynamics of antibody titers against these two viruses was observed in the latter cases.

In 14 patients deliveried of anencephalic infants, the distributions of complement fixing antibodies against CMV, Cox and these two viruses were 85.7%, 92.9% and 78.6%, respectively.

However, these viruses antibodies in 40 normal pregnant women were 52.5%, 12.5% and 5.0%, clearly showing their frequencies.

In the case of 3 patients with anencephalic infant, the antibodies against CMV were still positive level but Cox antibodies disappeared in their next normal pregnancy.

These data seemed to show strongly further etiological menaings of double infections with CMV and Cox for the occurrence of anencephalic pregnancy.

117. Oxigen Toxicity —Developmental Characteristics of Superoxide Dismutase and Lipid Peroxidation—

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The oxigen radical is so dangerous *in vivo* that it may lead unsaturated fatty acid to their peroxidation. Such an oxygen toxicity is the reality from which animals can not escape so long as animals depend on oxygen for their existance.

We studied changes of SOD activity and lipid peroxidation during development with some organs of rat and human. In the supernatant fraction of rat fetal organ (brain, lung, heart, liver and kidney) homogenates, the SOD activity were found to be only less than 1/3 that of mature organs. Similar findings were obtained in the human fetal liver. The lipid peroxidation was markedly great in the rat fetal liver, and it decreased along with growth. On the other hand, that was small in the rat fetal lung tissue, and it increased gradually until 10 days after birth.

The SOD activity of human placental tissue tend to increase along with the growth. The lipid peroxidation was great at early stage (2-4 month) of gestation. It was very small at the end of gestation (10 month)

It seems that the oxygen requirement in fetus is low as compared with that in mature animals. Consequently SOD activity will also be less. After birth, the defense system against oxygen toxity in the cell or organ become strong day by day, and within 10 days after birth those power become almost same as that of adult levels.

118. Viscoelasticity of Fetal and Neonatal Blood

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Viscoelasticity of human fetal and neonatal blood was determined and compared with that of adult blood. Viscoelasticity of heparinized whole blood was measured at shear strain of 6% using a low