Dept. Obst. & Gynec.,
Tottori Univ. Sch. Med., Tottori

Intra-uterine human fetal breathing movements by the usage of ultrasonic technique have been postulated and reported previously. Impedance method, which was more simpler than the ultrasonic method and not invasive, was utilized for recording of fetal breathing movements. Using the Impedance Plethysmograph (IMP 26 NIHON KODEN) and Beckmans skin electrodes, skin-impedance variations of third trimester pregnant women were monitored between the two points at intervals of 5 cm on the maternal abdomen, where rhythmic fetal thorax movements were visible. The small fetal respiratory impedance waves on the large maternal ones were clearly recorded. The frequence of maternal respiratory impedance waves were approximately 0.3 Hz. and that of fetal ones 1 Hz. When the maternal respiration stopped, only the fetal respiratory impedance waves were obviously recorded. In addition, the fetal breathing impedance waves from the maternal respiratory impedance waves by the invention of the impedance measurement and the specific management of impedance waves were separately obtained. By using this impedance method, it was concluded that this method was simple for investigators and non invasive for patients. Moreover fetal breathing movements could be monitored for a long time and the more detail on the pattern and frequency concerning fetal breathing movements would be elucidated.

306. Placental Aging Monitored by Ultrasonography

C. KAWAMATA, T. KOBAYASHI, H. TAKEUCHI and H. FURUYA

Dept. Obst. & Gynec.,
Juntendo Univ. Sch. Med., Tokyo

Placental images were scanned and photographed by Octoson every 1 cm interval transversely or longitudinally, in the 134 cases from the first trimester to full term pregnancy. Placental maturation has been identified based on changes which occur in three separate zones (ie. fetal and maternal surface and internal substance) and segmentation. Using these four factores, placental configuration could be classified into 5 types, which were summerized on placental aging. In the early stage of pregnancy, type I is dominant, and type II or type III are usually dominant in the middle stage of pregnancy. In the final stage, type IV is dominant and type V is found in the most cases after the estimated due day. It is concluded that this typing method presents the change of placental aging in vivo. Histopathologically, it is suspected that the echogenic substance in the maternal surface is fibrin deposites and carcification on the chorionic villi.

307. Factors Associated with Pre-term Birth/Low Birth Weight Infant Birth and their Antenatal Predictions

S. IMAI, Y. CHIBA, M. AOKI, S. SAKAKIBARA, T. HASEGAWA and K. KURACHI

Dept. Obst. & Gynec.,
Osaka Univ. Med. Sch., Osaka

A perinatal morbidity prediction system, "perinatal Abnormality Screening Score (PASS)" which was developed by Takemura was evaluated. Factors associated with pre-term birth and low birth weight infant birth were compared with those present in term birth and non low birth weight infant birth respectively. These factors were included in this PASS. And multivariable discriminant analysis between preterm and term birth as well as low birth weight infant and non low birth weight infant birth was made with the use of PASS.

Pre-term birth and low birth weight infant birth were related to ante-gravidal abnormalities, intra-gravidal abnormalities and especially feto-placental abnormalities. When these abnormalities correlate with each other, it leads to preterm birth/low birth weight infant birth. Discrimination between preterm birth with the use of ante-gravidal abnormalities was not so efficient (true positive: 58.3%, discrimination efficiency: 0.16). In low birth weight infant birth the values were 56.4% and 0.25. But added with intra-gravidal abnormalities and feto-placental abnormalities true positive ratios were improved to 79.0% and 83.9% respectively. With these discriminant functions external cheks were undertaken. The results were favourable.

These multivariable discriminant analyses were valuable to predict pre-term birth/low birth weight infant birth antenatally.

308. Determination of Fetal Sexes by Ultrasonic Tomography