

178 A New Amnioscope by Using Image fiber with Fluorescent Technique. K.Sumimoto, K.Yokosawa, N.Kanayama, T.Terao, Y.Kawashima, Dept. Obst. and Gynec., Hamamatsu Univ. Sch. of Med., Hamamatsu.

Previously, we reported that meconium contained a large amount of Zn-coproporphyrin which has two fluorescent peaks at 580nm and 630nm. We also developed a highly sensitive amnioscope for detecting this character. To improve the functions of this system, we developed a new image fiber of which diameter is 4.8 mm with quadruple structure. The new image fiber allow us to get close to the amniotic membrane. Excited light of 405nm and illumination light are produced from a xenon source light. Switching automatically, these lights are sent into amniotic fluid. Fluorescent signal is detected by a detector switched synchronously with light source. The signal is amplified 1000 times by image intensifier and then converted into electric signal by plasma coupled device. Being processed by a microcomputer, the fluorescent spectra are displayed on a liquid crystal display (LCD). By using the image fiber, the amniotic membrane and the color of amniotic fluid could be also seen directly. The area of measurement could be confirmed, therefore it could be sure that the fluorescent activities are correctly measured from amniotic fluid.

179 Free radical formation by ultrasound. E.Ryou, S.Kouzuma, T.Okai, Y.Kuwabara, M.Mizuno, T.Watanabe\*, Dept. of Obstet. and Gynecol., Univ. of Tokyo, Tokyo, \*Univ. of Tokyo Suisan, Tokyo.

We studied free radical formation by ultrasound to evaluate the safety of diagnostic ultrasound. The free radical was measured by spin trapping method using DMPO combined with electron spin resonance. Distilled water, human follicular fluid, amniotic fluid, and blood plasma were exposed to high power ultrasound produced by an ultrasonic cleaner. OH-DMPO radical signal was clearly obtained in distilled water. While in follicular fluid, amniotic fluid, and blood plasma, little OH-DMPO radical was obtained, where the common radical signal that is different from OH-DMPO radical was seen.

We produced pulse ultrasound exposure system. In this system, OH-DMPO radical signal was not clearly obtained in distilled water with ultrasonic pulse wave. (frequency: 2MHz., pulse duration: 10  $\mu$ sec., pulse repetition frequency: 1 KHz., SPTA: 4 W/cm<sup>2</sup>, maximal negative pressure: 3 MPa..)

180 The utility of Pulse Doppler method to determine the termination of high risk pregnancy with latent fetal distress. J.Ichihara, T.Fukuda, Y.Sumii, M.Emoto, Y.Makino, T. Shinohara, H.Izumi, T. Kaneoka, K. Shirakawa, M.Shindoh\*, K.Uchida\*\*, Dept. Obst. and Gynec., Fukuoka Univ. Sch. Med., Fukuoka Teisin Hosp\*, Fukuoka, Uchida Hosp\*\*, Yukuhashi City.

We had examined the predictability of fetal distress (FD) and neonatal asphyxia (NA) with Pulse Doppler in 211 cases of high risk pregnancy. FD was diagnosed with non-stress test (NST) and NA with low apgar score (< 7). In several cases, we calculated resistance index (RI) on umbilical and uterine artery blood flow and NST was carried out at the same time. In case of high umbilical RI without nonreactive NST, the rate of NA was 59.4%. In the cases of normal RI with nonreactive NST, the rate of NA was 0%. And this tendency was common in uterine artery. But, if we detect FD by pulse doppler accompanied with NST, the sensitivity was integrated 82.4% to 100%. But the specificity was decreased 100% to 53.9%. In the same way, detecting NA, the sensitivity integrated 71.4% to 93.3% and the specificity decreased 94.4% to 51.3%. We concluded that when the RI was high with reactive NST, we should repeat NST in the course of pregnancy. But latent distress was suspected by nonreactive NST accompanied with high RI, we should terminate the pregnancy to avoid FD and NA.