Clinical Evaluation of Dynamic Placental Blood Flow Using γ-Camera and Mini-Computer System

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It is very valuable that if the patient with genital bleeding at third trimester of pregnancy, the placenta previa, abraptio placenta or premature separation of the placenta could be ruled out before operation. Conventionally suspected cases with placenta previa are usually diagnosed bimanual vaginal exploration, but this technique occationally caused emargent genital bleeding which brought maternal and fetal life to danger.

The purpose of this study was to reevaluate and quantitate the placental scintigraphic method by using γ-camera and computer system. The functional images of placental perfusion were made from magnetic tape connected on line the mini-computer (Nova 01, 32 KW) which consisted of CPU, magnetic disc, graphic display and color display terminals.

In twenty-eight cases with genital bleeding at third terimester, the placental localization was performed by scintigraphic method. When compared with final diagnosis the diagnostic accurancy was over 90% in scintigraphic procedure and less than 85% in ultrasonic procedure. The functional image of placental perfusion of placenta previa was demonstrated almost normal, but it was noted slight unhomogeneous distribution in the k_2 phase (secration rate) compared with normal case. In the case of fetal death, placental accumulation of radioactivity was slightly less than normal case, however, this placenta was eventualy visualized and proven to be viable. Then primary fetal death was diagnosed and placenta previa was ruled out. The radiation doses to fetus was calculated by MIRD method as less than 9.5 mrads.

In conclusion, in spite of recent tendency that diagnosis of placental localization is more widely performed by ultrasonic method, our experience proved that radioisotope method still have definite phase for this paper.