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Image analysis of hysterosalpingogram using Densitometric Analyzer

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< **Purpose** > In the field of cardiovascular disease, stenoses of coronary arteries can be analyzed using Densitometric Analyzer which is computerized image scanning equipment made by Nishimoto Industry Co., Ltd., Osaka, Japan. The purpose of this study is its application for the diagnosis of uterine tube stenoses and patencies of hysterosalpingograms in gynecology.

< **Patients and Methods** > Hysterosalpingographies under X-ray TV monotoring is performed in patients with infertility in UOEH Hospital. These HSG photos enlarged by zoom lens are input into Densitometric Analyzer after the VTR recording.

< **Results** > Uterine tubes are automatically traced after the input of indicated area of HSG. Then, uterine tubes are automatically divided equally into 50 parts, and diameters of tubes and contrast media densities are digitally indicated. Main analyzing portion is tubal isthmus, and when the narrowest tubal width is ordered 1 mm, those two parameters are able to be indicated if the rate of enlargement is clear.

< **Conclusions** >

1. HSG is only evaluated two-dimensionally, because it is not taken multidimensionally like a coronary arteriography.
2. Salpingograms can be traced in the ordered area, even if tubes have meanders, however the parallax of tubal diameters and contrasts by depth is not able to be exactly corrected, because it is two-dimensional.
3. Hence this equipment is densitometric, X-ray photos such as HSG should be taken clearly in contrast for the evaluation.

I S－36 Changes in Urinary Levels of Metabolites of Nitric Oxide During Pregnancy

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Nitric Oxide (NO) is a potent vasodilator which is produced by endothelial cells. It has been postulated that alteration in production of NO may be involved in maternal homeostasis during pregnancy. The aim of this study is to clarify the role of NO in the above mentioned mechanism. Participants were 46 normal pregnant women; 10 in 1st, 14 in 2nd and 22 in 3rd trimester. Urine and blood samples were collected in the morning and subsequently analyzed. Production of intrinsic NO was estimated with determination of nitrite (NO_2) and nitrate (NO_3) in urine. For nitrate assay, diluted urine or standard solution consisted of $NaNO_3$ was incubated with nitrate reductase in the presence of NADPH and FAD. The reactant solution was mixed with twice volume of Griess reagent (1:1 mixture of 1% sulfanilamide in 5% H_3PO_4 and 0.1% naphthylethylenediamine dihydrochloride in water) and then incubated to form a stable azo dye, which was measured by spectrophotometry at 550 nm. Nitrite level in each urine sample was also determined with Griess method using standard solution consisted of $NaNO_2$. Urinary Nitrate level in each trimester was 273 ± 168 (1st), 522 ± 392 (2nd) and 625 ± 573 (3rd) (μM, mean ± SD), showing a trend of increased NO_3 towards the late pregnancy. While the molar ratio of NO_3/NO_2 was 388 ± 345, no difference in the ratio among the trimesters was noted. Although there was a weak positive correlation between urinary NO_2 and NO_3, it was not statistically significant. Weak inverse correlations between urinary NO_3 and mean blood pressure, and between NO_3 and serum uric acid were also noted. These data suggest that a main form of metabolite of NO in urine is NO_3. Meantime intrinsic NO production may increase along the course of pregnancy and it may play an important role in the mechanism to modulate circulatory physiology of pregnant women.