I S—35 Fetal Eye Open/Close Patterns in Correlation to Developing Central Nervous System Control

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[**Objective**] Prechtl et al. began focusing upon open and closed eyelids as an indicator when behavioral states in the fetus as well as the neonate were first categorized. Those studies, however, did not clearly characterize opened and closed eyes. We herein attempted to assess the chronological changes in eye open/close patterns, in the human fetus, in correlation to developing central nervous system control. [**Study design**] The study was conducted on 20 normal fetuses from 27 to 37 weeks' gestation (wks) after obtaining informed consent. The observational standard plane was determined to be a nearly coronal section of the fetal face, yielding a clear image of the eyelids and palpebral fissure. An ultrasonographic image was taken continuously for 60 min. and recorded on videotape. The open eye was defined as that with more than 1mm of palpebral fissure after observing the movement of both the upper and lower eyelids. The videotapes were replayed, 1)the incidences of eye opening/closing, 2)total duration of eye-opening, 3)mean time from eye close to open, and 4)mean time from eye open to close, were measured for each case. The fetuses studied were divided by two-week intervals into 6 age groups. Data was analyzed using piecewise linear regression. [**Results**] 1)The incidence of eye-opening decreased after 27-28 wks. (6.0 times) to the statistically critical age at 29-30 wks (2.0 times). 2)The total duration at 27-28 wks (5.0s) decreased to the statistically critical age at 35-36 wks (0.93s), after which time a step-wise increase was noted. 3)At 27-28 wks, the opening and closing times were 0.54s and 0.52s, respectively. 4)Those times decreased linearly and became stable at 33-34 wks (open: 0.3s vs close: 0.4s) onwards. [**Conclusions**] Taking into account that the eye-opening center exists at the oculomotor nerve nucleus in the midbrain and that the eye-closing center is at the facial nerve nucleus in the pons, 1) in the human fetus, just after the disappearance of eyelid fusion at 26 weeks, the total duration of eye opening was found to increase with advance in gestation, thereby indicating that the facial nerve nucleus, concerned with eye-closing, developes during that time, and 2) from 33-34 wks, both eye opening and closing times stabilize and shorted. Therefore, the central nervous system from the pons to midbrain can be considered to reach functional maturation at that time in gestation.

I S—36 The efficacy of endoluminal ultrasound system (EUS) as an optional baseline study of early stage cervical cancer

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To investigate the efficacy of endoluminal ultrasound system (EUS) as a surrogate for high frequency transvaginal ultrasonography and optional baseline study in determining parametrial and stromal invasion of early stage cervical cancer, 52 women suspected of cervical cancer underwent EUS. A 12 MHz endoscopic probe was employed to radially scan the cervix for possible lesions suspected to be invasive cancer during a period of 6 months from Feb. 1st to July 1st, 1995. Patients also underwent magnetic resonance imaging (MRI) and/or computerized tomography (CT) as a routine mode of baseline study, and were clinically staged by 3 independent physicians specializing in Obstetrics and Gynecology at the Department of Obstretrics and Gynecology, School of Medicine, Ajou University, Suwon, Korea. All patients subsequently received surgery appropriate for the stage of the disease and the final pathology findings were used to compare the results with clinical staging, EUS, MRI/CT by regression analysis.

The results showed that there was statistically significant correlation between MRI/CT and pathology ($r=0.660$, $p<0.02$), between EUS and pathology ($r=0.803$, $p<0.01$), and between clinical staging and pathology ($r=0.825$, $p<0.01$). It is concluded that there was significant statistical correlation between EUS, MRI/CT, clinical staging and pathology, but the question remained as to the statistical superiority of EUS over MRI/CT with regard to parametrial invasion and stromal invasion depth assessment. Finally, EUS is useful as an alternate optional diagnostic tool in the baseline study of cervical cancer.