ISP-21-7  To assess cervical dilatation and position of fetal head during labor using wireless mobile ultrasound device

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[Objectives] Digital vaginal examination has always been the gold standard to evaluate fetal status during labor. However, it can be inaccurate, subjective and uncomfortable for mother. Also, there is a risk of introducing infection with frequent examinations. Recently accumulated data on intrapartum sonogram seems very promising as a substitute of digital examination. However, the working of the ultrasound has raised several concerns as the machines are usually heavy and have disadvantage on immediacy. To overcome such disadvantages, a wireless mobile ultrasound device ‘Sonon’ operating on the mobile display systems has been introduced. In this study, we have evaluated the possibility for the replacement of intrapartum sonogram to vaginal examination. [Material and Methods] To evaluate Sonon, first, we have investigated correlation between conventional sonography and Sonon by fetalometry. Second, we have investigated sonopartogram using transperineal assessment of cervical dilatation, effacement and fetal head station. After obtaining informed consent from all participants, 23 pregnant women were enrolled to comparative study using fetal biometry between conventional ultrasoundography and Sonon during antepartal period. Since this portable ultrasound machine ‘Sonon’ is developed recently, there were not enough to reliable data in obstetric fields; so it was important to investigate the collections and analyses of raw values of fetal biometry. After then we had measured fetal weight in pregnant women during labor and compared with birth weight of neonate. We recruited 8 women, who were in the labor process, to participate in serial comparison of cervical dilatation, length, Angle of progression (AOP) and head symphysis pubis diameter (HSPD) with sonopartogram using Sonon by one examiner and serial digital vaginal examination consisting of cervical dilatation effacement, and station by another one examiner. Bivariate correlation analysis, linear regression, Pearson correlation, and Spearman’s rank correlation were performed to analyze the data collected. [Results] Compared to conventional sonography, Sonon had revealed good correlation in estimated fetal weight (p<0.001) and true neonatal birth weight (p<0.001). The intrapartum sonogram consisting of cervical dilatation (p<0.001), cervical length (p=0.022), AOP (p=0.001) and HSPD (p=0.008) had shown strong correlation to the digital vaginal examination. [Conclusion] A newly developed wireless mobile ultrasound device ‘Sonon’ showed good correlation with conventional ultrasonography and vaginal digital examination. Considering its convenience, Sonon can be a good alternative to reduce frequent vaginal examinations.

ISP-21-8  Consecutive change of cervical length in placenta previa for the prediction of emergent cesarean delivery

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[Objectives] To assess the predictive performance of serial cervical length measurements as a predictor for emergent cesarean section in women with placenta previa. [Methods] This was retrospective cohort study including 93 women with placenta previa. Cervical lengths were measured transvaginal ultrasound from early gestation until delivery. We compared clinical characteristics, serial change of cervical length, and outcomes between emergent cesarean delivery group (case group) and elective cesarean delivery group (control group). Predictive value of cervical change in predicting emergent cesarean delivery was evaluated. [Results] A total of 93 women were analyzed: 31 women had emergent cesarean delivery due to massive vaginal bleeding. Case group had abrupt cervical change during early third trimester compared with control group. On univariate analysis, hospitalization, cervical change between 2nd and third trimester, and nulliparity were significantly associated with emergent cesarean delivery. On multivariate analysis after adjusted by maternal age, hospitalization, placenta totalis, ant placenta, cervical change, nulligravidity, nulliparity, previous cesarean delivery, previous preterm delivery, only hospitalization, cervical change remained significantly associated with emergent cesarean delivery. Analyses of the ROC curve showed that cervical change could be the predictor of emergent cesarean delivery (area under the curve 0.676, p = 0.041) with optimal cutoff for predicting emergent cesarean delivery of 1.40. [Conclusions] Tranvaginal sonography for CL measurement can be helpful for predicting emergent cesarean delivery.

ISP-22-1  Relationship between serum D-dimer levels and placental findings in pregnant women with fetal growth restriction

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[Objective] Serum D-dimer levels show a gradual increase in the late stages of gestation. The main cause of this elevation is thought to be D-dimer production in the placenta. We investigated the relationship between the D-dimer level and placental findings in cases of fetal growth restriction (FGR). [Methods] We enrolled 83 pregnant women with FGR, who underwent blood D-dimer level testing at 35 or 36 weeks of gestation and delivered within 14 days of the test. Twenty-six of 83 subjects had pregnancy induced hypertension (PIH : PIH group), and the remaining 57 subjects were in the non-PIH group. In 64 of 83 subjects, the placenta was examined pathologically. Serum D-dimer levels, placental weight, and pathological findings such as fibrin deposition, infarction, and chorangiosis were evaluated retrospectively. [Results] D-dimer levels were positively correlated with placental weight in the non-PIH group (R=0.41, p < 0.01). Serum D-dimer levels in the PIH group (3.6±2.9 μg/mL) were significantly greater than those in the non-PIH group (2.2±1.4 μg/mL); however, placental pathology did not affect the D-dimer levels. [Conclusion] Placental D-dimer production may increase serum D-dimer levels in pregnant women with FGR. Moreover, in the PIH group, elevation of D-dimer levels may be affected by the D-dimer produced not only in the placenta but also in the systemic circulation.