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Postnatal umbilical coiling index abnormality & gestational diabetes mellitus

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Aims: Umbilical coiling index (UCI) abnormalities could be associated with adverse prenatal outcomes. So antenatal evaluations, as screening modality for detection of these abnormalities and prediction of postnatal umbilical coiling index got useful to select pregnancies for intensified fetal monitoring in gestational diabetes mellitus (GDM) compared with normal pregnancy.

Method: In this prospective study, 222 women recruited; (105 normal, and 117 GDM). Ultrasound scan of umbilical cord was performed at 2nd and 3rd trimesters. Evaluation of pUCI, as the reference standard, was performed within 1-2 days after delivery.

Findings: The mean for pUCI was 0.21 ± 0.12 in the GDM group, and 0.21 ± 0.09 in the normal pregnancy ($P=0.61$). Postnatal UCI was more related to aUCI at 37-41 WG in both groups. In the GDM group, a

significant association was found between aUCI and pUCI categories ($P=0.004$). The area under curve (AUC) was less than 0.5 for hypo-coiling in both groups. For hypercoiling it was 0.84 ± 0.05 in the GDM group and 0.84 ± 0.04 in the normal pregnancy group (37-41 WG). In the GDM group the cut-off points that predict hypercoiling were 0.28 (18-23WG), and 0.21 (37-41WG). These were 0.35(18-23WG), and 0.33(37-41WG) in the normal pregnancy group. In the diagnostic accuracy analysis, the sensitivity of hypercoiling in GDM group in two antenatal evaluations was 0.94 and 0.89.

Conclusions: Hypercoiling at the second and the third trimester could predict postnatal hypercoiling in normal pregnancy as well as pregnancies complicated by GDM. The cut-off point that predicts hypercoiling is 0.33 in normal pregnancy, and 0.21 in GDM.

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