Second trimester short cervix and decreased abundance of cervicovaginal lipid metabolites

TO THE EDITORS: Preterm birth (PTB) remains an unrelenting obstetrical cause of neonatal morbidity and mortality. Currently, cervix length during the second trimester appears to be a favorable predictor of spontaneous PTB (sPTB); the shorter the cervix, the greater the risk of sPTB.[1] The causes have been attributed to uterine distention pressure, cervical insufficiency, inflammation, biological variation, etc.[2] Recently, Gerson et al[3] attempted to determine if a distinct cervicovaginal metabolomic profile is associated with a short cervix (<25 mm). They reported that a lipid (sphingolipid)-deficient cervicovaginal microenvironment was associated with a second trimester short cervix in a cohort at a high risk of sPTB. The authors concluded that there could be potential mechanisms by which modifiable environmental factors might invoke cell damage in the setting of biological vulnerability, thus promoting premature cervical remodeling in preterm birth. However, the study raises some important issues as highlighted herein that should be addressed.

The authors found that a *Lactobacillus*-deficient cervicovaginal microbiota was more prevalent in cases of short cervix (63%) than in those with normal cervical length (38.5%). Cervicovaginal lipid metabolites were markedly decreased in cases of a short cervix, regardless of the cervicovaginal microbiota. However, they also found that in individuals colonized by *Lactobacillus*-deficient cervicovaginal microbiota, no difference was observed in lipid metabolites between those having a short cervix and those having a normal cervical length. Did this mean that decreased lipid metabolites were present only in pregnant women of short cervix without a *Lactobacillus*-deficient cervicovaginal microbiota? Is there any association between *Lactobacillus* microbiota and lipid metabolites? A surprising finding was that among individuals with a short cervix, no metabolites differed between those of sPTB at <34 weeks and those at ≥34 weeks gestations. Does this imply that there are factors other than lipid metabolites that determine the initiation of preterm labor? It is a pity that there were no nonpregnant women as a control group. What are the levels of lipid metabolites in this group? Is the local lipid metabolism before pregnancy correlated with cervical remodeling in gestation?

Cervix length measurement is an objective and reliable screening test to identify women at risk of sPTB. Serial measurements on transvaginal ultrasonography during the second trimester will help to individualize management and improve perinatal outcomes by optimizing the timing of antenatal steroid therapy.[4] We agree with Gerson et al that their findings may have an application prospect in modifying components of the cervicovaginal microenvironment to potentially prevent sPTB, although various inputs are believed to promote premature cervical ripening (Figure). ■

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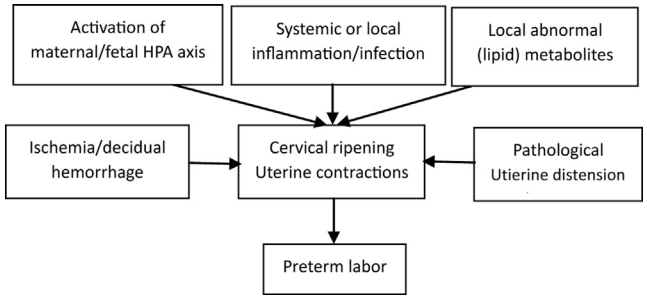
FIGURE
Schema of common pathways for cervix remodeling and preterm labor



HPA, hypothalamic-pituitary-adrenal.

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