The role of cervical length in women with threatened preterm labor – is it a valid predictor at any gestational age?

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Objective
To determine if the predictive accuracy of cervical length in women with threatened preterm labor (PTL) for the prediction of preterm delivery (PTD) is related to gestational age (GA) at presentation and to calculate GA adjusted cervical length thresholds for the prediction of PTD.

Methods
A retrospective cohort study of pregnancy women with singleton pregnancy who presented with PTL<34+0 weeks and sonographic measurement of cervical length in a tertiary medical center (2007-2012). The association and predictive accuracy of cervical length for PTD was analyzed based on GA at presentation with PTL using both fixed and GA-adjusted thresholds.

Results
1,077 sonographic examinations of women with PTL were performed. From them, 223 (20.7%) were at 24+0 to 26+6 weeks, 274 (25.4%) at 27+0-29+6 weeks, 283 (26.3%) at 30+0-31+6 weeks, and 297 (27.6%) at 32+0-33+6 weeks. The association between the cervical length and the risk of PTD was unrelated to GA (O. R 0.90-0.95) and the risk of PTD decreased by 5-10% for each additional millimeter of cervical length, irrespective of GA. The ability of cervical length to distinguish between women who delivered prematurely was not affected by GA with PTL (AUC=0.631-0.698, p=0.5). The predictive accuracy, (combination of sensitivity and specificity) was not consistently higher in a specific GA group and finally GA-adjusted thresholds of cervical length with constant detection rate of 80% at all GA groups were calculated. As GA at presentation increased, these GA-adjusted thresholds became lower (e.g., 39.5 mm to 28.5mm in the case of prediction of PTD at <35 weeks) and the associated specificity became higher.

Conclusion
The association and predictive accuracy of cervical length for PTD does not appear to be affected by GA at presentation with threatened PTL. However, the cervical-length threshold used for clinical decision making might need to be adjusted based on GA.