

Prediction of post-term pregnancy in nulliparous women by transvaginal ultrasonographic measurement of cervical length at 20 to 24 weeks and 37 weeks

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Objective : To evaluate the transvaginal ultrasonographic measurement of cervical length at 20 to 24 weeks and 37 weeks as a predictor of post-term pregnancy (defined as a pregnancy that extended beyond 41⁺³ weeks of gestation) in nulliparous women.

Methods : This prospective observational study enrolled 151 consecutive nulliparous women with singleton gestations at 37 weeks. Cervical length was measured by transvaginal ultrasonography at 20 to 24 weeks and 37 weeks. Analysis was conducted with Fischer's exact test, Mann-Whitney U test, and receiver operating characteristic curve analysis.

Results : 1) Post-term pregnancy occurred in 16.6% (25/151) of the women delivered at or beyond term. 2) The mean (\pm standard deviation) cervical length at 20 to 24 weeks and 37 weeks were 39.4 \pm 5.4 mm and 28.4 \pm 6.3 mm, respectively. 3) Cervical length at 37 weeks, but not at 20 to 24 weeks, was significantly longer in women delivered at $\geq 41^{+3}$ weeks than in those delivered at $< 41^{+3}$ weeks (median 33 mm, range 18 to 44 mm vs 28 mm range 11 to 42 mm; $p=0.003$). 4) There was a significant correlation between cervical length at 37 weeks and gestational age at delivery (Pearson correlation coefficient, $r=0.372$, $p<0.0001$). 5) In the receiver operating characteristics curves, the best cut-off value of cervical length at 37 weeks for the prediction of post-term pregnancy was 30.0 mm, with a sensitivity of 64% and a specificity 66%.

Conclusion : Cervical length assessed by transvaginal ultrasonography at 37 weeks can predict the likelihood of post-term in low-risk nulliparous women. However, there is not an association between cervical length at 20 to 24 weeks and the occurrence of post-term pregnancy.