Objective
To test the hypothesis that early onset (<24 weeks) long-term indomethacin therapy (indomethacin treatment >48 hours) (LIT) stabilizes the cervical length (CL), successfully prolongs pregnancy in patients with short cervix.

Methods
Serial CL measurements of singleton pregnancies at risk for preterm birth were identified. Information about treatment strategies (17-OHPC, vaginal progesterone, indomethacin) and pregnancy outcome were documented. Degree of cervical shortening was analyzed in patients with a short cervix (≤25 mm) before 24 weeks who received LIT and women with normal cervical length at the same gestational period. Factors effecting stability of cervix were assessed using binary regression analysis. Longitudinal analysis of the change in CL was modeled using mixed-model regression analysis and predicted values of CL for short cervix- LIT and normal cervical length group were compared by slope analysis.

Results
We included 199 patients with 725 serial cervical length measurements. Of these, 80 (67%) patients received LIT. Gestational age at initial ultrasound examination was similar, however, women who were treated with LIT had significantly shorter CL at initial examination (median 15 mm vs 39 mm, p <0.001). The proportion of patients having a stable CL in LIT group was significantly more than normal cervical length group (65 vs 28 %) (p<0.001). Gestational age at delivery was similar in both groups (p>0.05).

Binary logistic regression analysis showed LIT use was the only factor determining stabilization of the cervix (Cervical stabilization = LIT x 1.55-0.619, R2 =0.15, p <0.0001). Women in LIT group showed a small increase (0.3-0.5 mm/week) in CL, while in the normal cervical length group CL shortened progressively (0.3-2.6 mm/week) (p<0.0001).

Conclusion
Early onset long-term indomethacin therapy in patients with short cervix keeps the cervix from changing. Further investigations on the effect of indomethacin on cervical form and function and comparison of these effects in treated and untreated cohorts should provide guidance for optimum use in specific patient population. This study warrants a randomized control trial for investigation of LIT in prevention for preterm birth.