Retrospective analysis of pregnancy outcomes in multiple pregnancies after cerclage

Hanulikova P, Mackova K, Krofta L, Feyereisl J

Institute for the Care of Mother and Child Third Faculty of Medicine Charles University, Prague, Czechia

Objective

Cervical cerclage is a surgical procedure that can prevent miscarriage or preterm birth in patients with cervical insufficiency and/or history of pregnancy losses. In the last decade, there is growing evidence that the procedure is not only effective in singleton pregnancies, as it was previously thought, but has also good efficacy and safety profile in multiple pregnancies. In our institution (tertiary perinatology centre based in Prague), we centralize care of high-risk multiple pregnancies from both Czechia and Slovakia. Our goal was to analyse a cohort of pregnant patients with more than one foetus, who underwent cerclage for cervical insufficiency and/or adverse perinatal history.

Methods

Retrospective analysis of all multiple-pregnant patients who underwent cervical cerclage at our institution from 01.01.2013 to 01.02.2023. The primary outcome was the analysis of the interval between cerclage and delivery or miscarriage. Secondary outcomes were descriptive statistics of the cohort and analysis of other variables which may have a relation to the cerclage outcome (values of markers of inflammation obtained from the amniotic fluid – interleukin 6 - IL6, from the blood – Leukocytes, C-reactive protein and functional length of cervix measured by ultrasound). Statistical analysis was performed using the GraphPad Prism program. The results are evaluated as statistically significant at a value of $p \leq 0.05$.

Results

During the monitored period, a total of 27 multiple-pregnant patients obtained cerclage. 25 were twins (11 dichorionic-diamniotic, 13 monochorionic diamniotic, 1 monochorionic monoamniotic) and 2 triplets (1 trichorionic triamniotic, 1 monochorionic triamniotic). This group was further divided into subgroups depending on the indication for cerclage: 1) on the basis of anamnesis (history indicated - HI) of previous pregnancy losses or premature births (n = 14; 52%), 2) on the basis of an ultrasound finding (ultrasound indicated - USI), a shortened cervix with a functional length of ≤ 10 mm (n = 7; 26%) or 3) rescue cerclage (Rescue – R) in case of prolapsed sac of membranes into the vagina (n = 6; 22%). The average patient indicated for cerclage was 33 years old, gravida 2 para 0, with a BMI of 24. 52 % conceived after some of the IVF methods. The cerclage was most often applied at week 23^{+1}, delivery occurred in an average of 56 days, at week 31^{+2}, and the median foetal weight was 1505 g for foetus A and 1472 g for foetus B. In triplets, foetus C median weight was 1165 g. All patients went home with at least one live new-born, and 74% (n = 20) of them went home with more than one baby. In 78% (n = 21) a diagnostic amniocentesis (AMC) was performed before the procedure, with a mean IL6 value of 1025 ng/L. Statistical analysis showed a negative correlation between the value of IL6 and the interval between cerclage and the time of delivery, both in the whole group of multiple pregnancies ($p < 0.0001$) and in its subgroups HI ($p < 0.0001$), USI ($p = 0.0036$), R ($p < 0.0001$). Neither the values of inflammation markers from the blood (CRP and LEU) nor the functional length of the cervix before cerclage, had a significant relationship with the subsequent length of pregnancy. In 22% (n = 6) some pathology typical for monochorionic twins was present (selective form of foetal growth restriction – sFGR or transfusion syndrome - TTTS) resulting in preterm delivery regardless the cervical insufficiency.

Conclusion

Data analysed from multiple pregnancy are in line with our parallel findings in singleton pregnancies. In both, the IL6 value from the amniotic fluid before cerclage is a good predictor of outcome of pregnancy in contrast to markers of inflammation from maternal blood. The interval between cerclage and delivery was shorter in multiple pregnancies (56 vs 90 days), however other parallel pathologies were present in almost a quarter of the multiple pregnancy group (as TTTS or sFGR), which may have affected the results.