



Cerclage in twin pregnancy

: a national population-based study in South Korea

Seung Yeon Pyeon¹, Kena Park¹, In Hae Na¹, Geum Joon Cho², Hyun-Joo Seol¹

¹Department of Obstetrics and Gynecology, Kyung Hee University Hospital at Gangdong

²Department of Obstetrics and Gynecology, Korea University Guro Hospital, Korea University College of Medicine

Objective

To evaluate the risk of cerclage on preterm birth in twin pregnancy.

Method

The data of this study were collected from Korea National Health Insurance (KNHI) claims database of the Health Insurance Review and Assessment Service. As part of KNHI system, a National Health Screening Program for Infants and Children (NHSP-IC), for which children aged 4 to 80 months are eligible, consists of history taking, anthropometric measurements, physical examination, and developmental screening. In this study, KNHI claim data and NHSP-IC data were merged and analyzed. Data on women who gave birth to twins from January 1, 2011 to December 31, 2020 was identified. The women who underwent cervical cerclage operation (e.g. McDonald operation, Shirodker operation, abdominal cerclage operation) within 280 days from the date of delivery were identified by procedure codes of claim data. The gestational age of birth was obtained by NHSP-IC data. Clinical characteristics were compared among groups using the t-test for continuous variables and the chi-squared test or Fisher's exact test for categorical variables. Multiple logistic analysis was used to estimate the adjusted odds ratio.

Result

Total 57,042 women were involved in the study. Of these women, **53,726** women had no cerclage (No cerclage group) and **3,316** women (5.81%) had any of the cervical cerclage operations within 280 days from the date of delivery (Cerclage group). In cerclage group, the frequency of **preterm birth** (25.36% vs. 18.31%, p value<0.001), **premature preterm rupture of membrane (PPROM)** (44.21% vs. 24.92, p value<0.001), **chorioamnionitis** (7.78 vs. 2.84, p value<0.001) were significantly higher than control group. After adjusting for age, primiparous, PROM and chorioamnionitis, the risk of **preterm birth before 34 weeks and before 28 weeks was 2.15 times and 3.74 times higher than control group**, respectively.

	No cerclage group (n=53,726)	Cerclage group (n=3316)	P value
Age, Mean(SD)	34.415(3.830)	34.905(3.531)	<0.001
Nulliparity, n(%)	38,584 (71.82)	2,487 (75.00)	<0.001
c/sec delivery, n(%)	47,961 (89.27)	2,983 (89.96)	0.213
Preterm birth, n(%)	9,835 (18.31)	841 (25.36)	<0.001
PREM34, n(%)	2,276 (4.24)	352 (10.62)	<0.001
PREM28, n(%)	275 (0.51)	72 (2.17)	<0.001
PPROM, n(%)	13,390 (24.92)	1,466 (44.21)	<0.001
chorioamnionitis, n(%)	1,526 (2.84)	258 (7.78)	<0.001

Table 1. The characteristics of the two groups

	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Preterm birth		
PREM34	2.69 (2.39, 3.02)	2.15 (1.90, 2.43)*
PREM28	4.32 (3.32, 5.61)	3.74 (2.85, 4.91)*
PREM34, preterm birth before 34weeks; PREM 28, preterm birth before 28weeks. * adjusted for age, primiparous, PROM, chorioamnionitis		

Table 2. Risk of preterm birth, PPRM, chorioamnionitis according to the cerclage operation

Conclusion

In twin pregnancy, cerclage operation associated with an increased the risk of preterm birth before 34 weeks and 28 weeks.