



The effective strategy of prevention preterm birth with women with a previous history of preterm birth

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Introduction

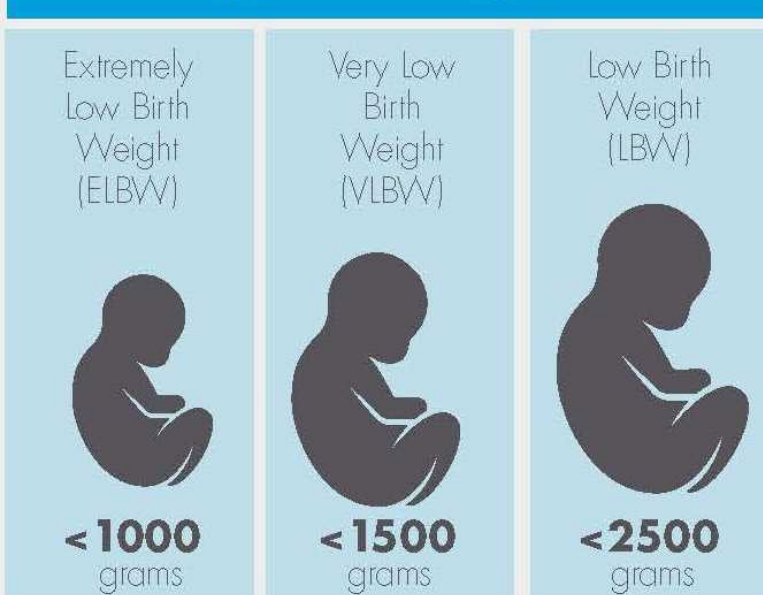
Preterm birth is defined as a baby who is born before

37 weeks

An estimated **15 Million** preterm babies are born each year around the world.¹

1 out of every 10 babies are born too early in the United States every year.²

Categories of Premature Infants by Birth Weight³



Racial Disparities

In the United States, the rate of black women having preterm births is about **50%** higher than that of white women.⁴

Risk Factors⁵ for preterm birth.



Spontaneous preterm delivery (PD) is the leading cause of neonatal morbidity in the Ukraine and is the most common reason for hospitalization during pregnancy (Fig.1). Premature infants have increased rates of morbidity and mortality in early and late childhood and decreased rates of unassisted pregnancy later in life, compared with term infants. The high-risk group for PB includes pregnant women with impaired obturation cervical function. Cervical incompetence (CI) is the insufficiency of the circular musculature of the internal os, which contributes to the development of insolvency of the obstructive function of the cervix. CI was found in every 3-rd case of preterm birth. The use of cervical cerclage pessary (CCP) from 14 weeks of pregnancy, even with multiple pregnancies, is a modern method for effective prevention strategy of PB. The rate of all-cause preterm deliveries in the Ukraine decreased from 12,4% in 2005 to 10,3 % in 2018. In 2018, preterm deliveries occurred in 8,4% of single gestation pregnancies.

Figure 1. Risk factors for preterm birth.

A recent reduction in preterm deliveries in the Ukraine may partially be the result of newer recommendations "D. G. Konkov, O. V. Bulavenko, S. G. Galich et al. The prevention of preterm birth: Recommendations / ; Ukrainian Center of Sciences. med. information and patent licenses.; National Pirogov Memorial Medical University. - Kiev, 2017. -- 56 p". These recommendations include cervical pessaries prevention treatment for those at high risk of preterm delivery, stricter guidelines for multiple pregnancy. Currently, in Ukraine registered silicone only cervical perforated pessaries produced by "Simurg", the Republic of Belarus (Fig.2). Use of the cervical pessaries had the positive effects in preventing preterm birth in asymptomatic singleton pregnancy women diagnosed with cervical incompetency.

Aim

To determine the effectiveness of CCP in pregnant women with a previous history of PB.

Materials and methods

64 women with a singleton pregnancy with the previous history of PB were included in our prospective investigation. Pregnant patients were randomly assigned to the installation of a CCP in 14-16 weeks of gestation (n = 34) or preventive management with vaginal progesterin from 20 weeks (n = 30). As clinical outcomes, we assessed the amount of PB (up to 28 weeks, up to 34 weeks, up to 37 weeks), cases of preterm rupture of membrane, cases of vaginal dysbiosis, and cases of labor dystocia.



Figure 2. Silicone cervical perforated pessary

Results

Our investigation delineated the clinical effectiveness of CCPs Simurg in reducing the incidence of premature birth. We delineated the clinical effectiveness of CCPs in reducing the incidence of PB to 28 weeks 0% versus 6,7% for progesterin therapy respectively; to 34 weeks RR 0,44; 95% CI 0,09 to 2,24, P=0,32 and cases of preterm rupture of membranes (RR 0,71; 95% CI 0,21 to 2,39, P=0,58). There were 5 and 8 cases of labor dystocia (RR 0,55; 95% CI 0,20 to 1,50, P=0,24), respectively. 70,6% of pregnant women with CCPs there were vaginal dysbiosis versus 66,7% who used vaginal progesterin (RR 1,06; 95% CI 0,76 to 1,48, P=0,74). At the same time there were no amounts of intrauterine infection cases.

Table Clinical results of the strategy for prevention of PB

Strategy for prevention of PB	Cervical Pessary % (n = 34)	Vaginal progesterin, % (n = 30)	RR; 95% CI. P
Incidence of PB to 28 weeks	-	6,7	
incidence of PB to 34 weeks	5,9	13,3	0,44; 95% CI 0,09 to 2,24, P=0,32
Intrauterine infection	-	-	
Preterm rupture of membranes	11,8	16,7	0,71; 95% CI 0,21 to 2,39, P=0,58
Labor dystocia	14,7	26,7	0,55; 95% CI 0,20 to 1,50, P=0,24
Vaginal dysbiosis	70,6	66,7	1,06; 95% CI 0,76 to 1,48, P=0,74

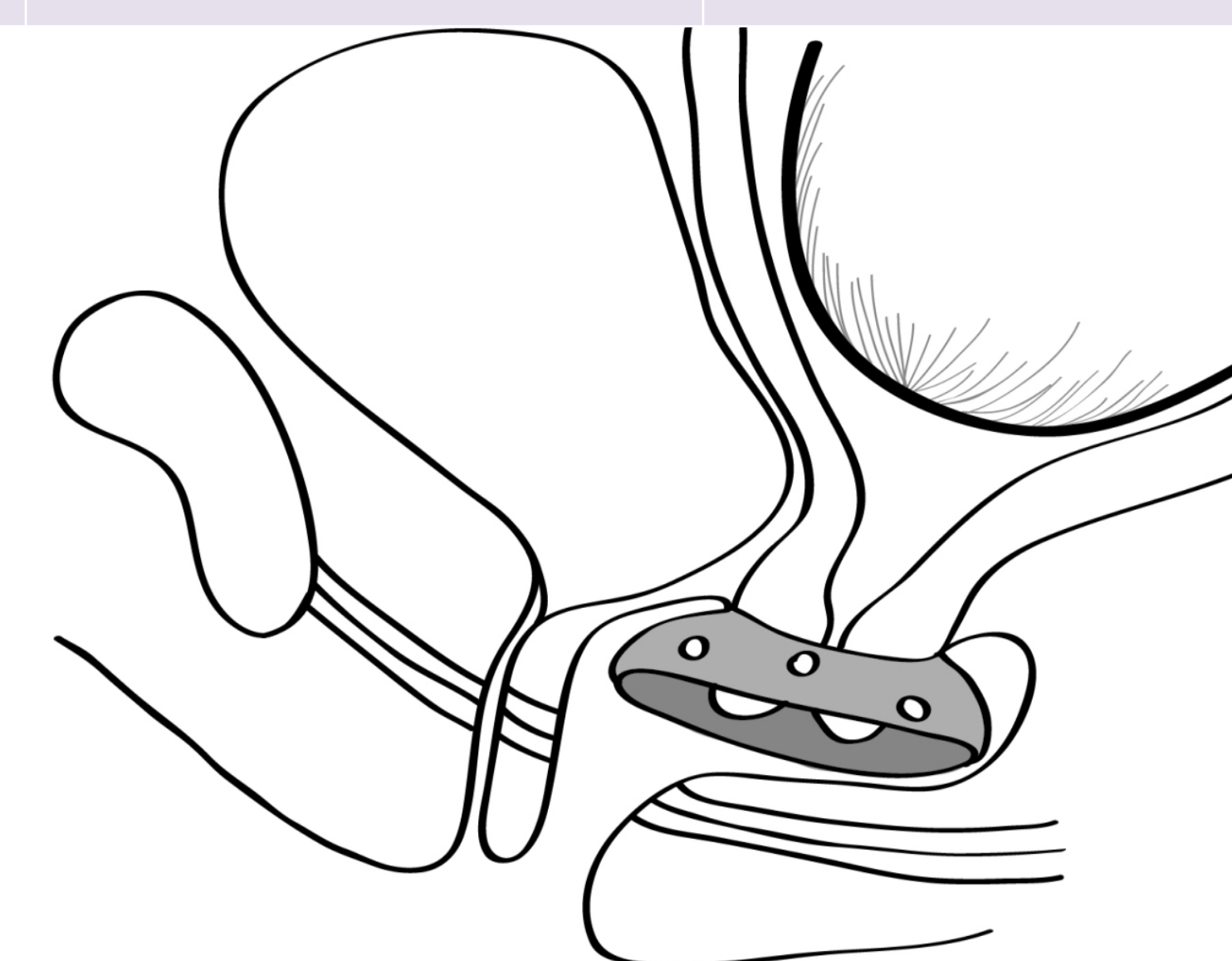


Figure 3. Results of pessary use. Sacralization and length stabilization of the cervix

Conclusion

Spontaneous preterm birth is a major cause of perinatal morbidity and mortality in the world. It represents a major cause of prenatal loss. The CCP, as well as a vaginal progesterin, had effective prevention of preterm birth in singleton pregnancy among women with the previous history of PB. The differences between the selected strategies were not significant.