PROPHYLACTIC STRATEGIES FOR THE PREVENTION OF PRETERM PREMATURE RUPTURE OF MEMBRANES (PPROM)

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ПРОФИЛАКТИЧЕСКИЕ СТРАТЕГИИ ДЛЯ ПРЕДОТВРАЩЕНИЯ ПРЕЖДЕВРЕМЕННОГО РАЗРЫВА ПЛОДНЫХ ОБОЛОЧЕК (ППРОМ)

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Abstract

Preterm premature rupture of membranes (PPROM) is a major contributor to preterm births, increasing neonatal morbidity and mortality. This study evaluates prophylactic strategies such as progesterone supplementation, cervical cerclage, infection control, and lifestyle modifications. A systematic literature review of studies published between 2000 and 2024 was conducted. The findings suggest that targeted interventions in high-risk populations can reduce PPROM incidence and improve perinatal outcomes. However, further research is necessary to optimize these preventive measures.

Аннотация

Преждевременный разрыв плодных оболочек (ППРОМ) является одной из основных причин преждевременных родов, увеличивая неонатальную заболеваемость и смертность. В данном исследовании оцениваются профилактические стратегии, такие как применение прогестерона, цервикальный серкляж, контроль инфекций и модификация образа жизни. Был проведён систематический обзор литературы, опубликованной в период с 2000 по 2024 год. Результаты показывают, что целенаправленные вмешательства в группах высокого риска могут снизить частоту ППРОМ и улучшить перинатальные исходы. Однако необходимы дальнейшие исследования для оптимизации данных профилактических мер.

Keywords: PPROM, preterm birth, progesterone supplementation, cervical cerclage, infection control, pregnancy complications, neonatal outcomes, prophylactic strategies.

Ключевые слова: ППРОМ, преждевременные роды, применение прогестерона, цервикальный серкляж, контроль инфекций, осложнения беременности, неонатальные исходы, профилактические стратегии.

Introduction:

PPROM, defined as the rupture of fetal membranes before 37 weeks of gestation, accounts for nearly one-third of preterm births and is associated with neonatal complications such as respiratory distress syndrome and infections. The

etiology of PPROM is multifactorial, including intrauterine infections, cervical insufficiency, and inflammation. Identifying high-risk patients and implementing effective prophylactic measures are crucial in reducing its incidence. This study reviews current evidence on preventive strategies.

Methods:

A systematic literature review was conducted using PubMed, EMBASE, and Cochrane Library (2000–2024). Studies focusing on progesterone supplementation, cervical cerclage, infection control, and lifestyle modifications were analyzed. Inclusion criteria:

- Studies evaluating prophylactic interventions for PPROM prevention.

- Randomized controlled trials, cohort studies, and systematic reviews.

- Publications in English.

Results:

Hormonal Interventions

Progesterone Supplementation:

Progesterone supplementation has been shown to reduce PPROM risk in women with a history of preterm birth or short cervical length. Studies indicate a 30–40% reduction in PPROM incidence, improved gestational age at delivery, and decreased neonatal respiratory complications.

Surgical Interventions

Cervical Cerclage:

Cervical cerclage is effective in preventing PPROM in women with cervical insufficiency. It provides mechanical support to prevent premature dilation and membrane rupture. Key studies have demonstrated reduced PPROM rates and prolonged pregnancy duration in high-risk patients.

Infection Control Measures :

Intrauterine infections significantly increase PPROM risk. Routine screening and treatment of bacterial infections, particularly bacterial vaginosis, have been associated with improved membrane integrity and reduced PPROM incidence.

Lifestyle and Nutritional Modifications:

Lifestyle changes, such as smoking cessation, improved nutrition, and stress management, contribute to lower PPROM risk. Maternal nutritional support, including omega-3 fatty acids, has been linked to better pregnancy outcomes.

Discussion:

Preventive strategies, including progesterone supplementation, cerclage, and infection control, significantly lower PPROM risk. Lifestyle modifications further enhance maternal and neonatal health. Despite these findings, variations in study design limit the generalizability of results. Further large-scale trials are needed to determine the combined effects of these interventions.

Conclusion:

A multidisciplinary approach incorporating progesterone supplementation, cervical cerclage, infection control, and lifestyle modifications can effectively reduce

PPROM incidence and improve perinatal outcomes. By identifying high-risk patients early and implementing these preventive strategies, healthcare providers can significantly decrease the burden of preterm births and associated neonatal complications.

While existing research supports the efficacy of these interventions, further large-scale, multicenter randomized controlled trials are needed to refine their application and optimize outcomes. Additionally, developing standardized clinical guidelines tailored to different risk profiles will be essential in ensuring the best possible care for pregnant women at risk of PPROM. Ongoing research and collaboration among obstetricians, neonatologists, and public health professionals will be crucial in advancing the prevention and management of PPROM.

A multidisciplinary approach incorporating progesterone supplementation, cervical cerclage, infection control, and lifestyle modifications can effectively reduce PPROM incidence and improve perinatal outcomes. Further research is necessary to refine these strategies and establish standardized clinical guidelines.

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