CLINICAL AND FUNCTIONAL ASSESSMENT OF PERIODONTAL TISSUES IN PREGNANT WOMEN WITH IRON DEFICIENCY ANEMIA

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Abstract. Iron deficiency anemia during pregnancy is a significant systemic disorder that may affect various organs and tissues, including the oral cavity. Reduced hemoglobin concentration and insufficient iron reserves can influence tissue oxygenation, cellular metabolism, and immune responses. At the same time, pregnancy-related hormonal changes increase periodontal tissue sensitivity to local irritants, particularly bacterial dental plaque. These combined factors may contribute to the development or aggravation of inflammatory periodontal conditions. This study examines the clinical and functional characteristics of periodontal tissues in pregnant women diagnosed with iron deficiency anemia. Particular attention is given to gingival inflammation, bleeding on probing, periodontal pocket depth, dental plaque accumulation, and changes in gingival microcirculation. The assessment of hematological parameters, including hemoglobin and serum ferritin concentrations, may help identify associations between iron status and periodontal health. A comprehensive approach to periodontal evaluation is important for identifying early pathological changes and determining the possible influence of systemic iron deficiency on oral tissues. Early diagnosis, appropriate dental care, and timely correction of iron deficiency may contribute to maintaining periodontal health throughout pregnancy.

Keywords: iron deficiency anemia, pregnancy, periodontal tissues, gingivitis, periodontal inflammation, hemoglobin, ferritin, oral health.

Introduction

Pregnancy is a physiological condition characterized by substantial hormonal, metabolic, and hematological changes that can influence the functioning of different body systems. The oral cavity is particularly sensitive to these changes, as increased estrogen and progesterone levels may modify the inflammatory response of gingival tissues. Iron deficiency anemia is one of the most common nutritional disorders during pregnancy and is associated with reduced hemoglobin synthesis and impaired oxygen

transport. Insufficient oxygen supply may affect the metabolic activity and regenerative capacity of periodontal tissues. Furthermore, iron deficiency may influence immune mechanisms and the body's ability to maintain an adequate response to microbial factors. The simultaneous presence of hormonal changes and anemia may therefore increase susceptibility to periodontal inflammation. For this reason, studying periodontal health in pregnant women with iron deficiency anemia has considerable clinical importance.

Aim of the Study

The aim of this study is to evaluate the clinical and functional condition of periodontal tissues in pregnant women with iron deficiency anemia, identify the main manifestations of periodontal inflammation, and determine the possible relationship between hematological parameters and periodontal health indicators. An additional objective is to establish the importance of early dental diagnosis and preventive interventions in this patient population.

Materials and Methods

The proposed study includes pregnant women diagnosed with iron deficiency anemia and a comparison group consisting of pregnant women without anemia. Participants are evaluated according to their gestational age, general health status, and relevant medical history. Hematological assessment includes hemoglobin concentration, serum ferritin, and other indicators of iron metabolism where available. Dental examinations focus on gingival color, edema, bleeding on probing, plaque accumulation, and periodontal pocket depth. Standardized periodontal indices, including the Gingival Index (GI), Plaque Index (PI), and Community Periodontal Index (CPI), can be applied to assess the severity of periodontal changes. Functional examination may include assessment of gingival microcirculation using suitable diagnostic techniques. Particular attention is also given to oral hygiene habits, frequency of dental visits, and the presence of local irritating factors. Statistical analysis is intended to establish possible correlations between hematological parameters and periodontal indicators.

Results and Discussion

The expected findings may demonstrate differences in periodontal tissue condition between pregnant women with iron deficiency anemia and those without anemia. Women with reduced hemoglobin and serum ferritin levels may present more pronounced gingival inflammation, increased bleeding tendency, and less favorable

periodontal index values. Changes in gingival microcirculation may also be relevant when evaluating the functional condition of periodontal tissues. One possible explanation is that reduced oxygen transport and alterations in tissue metabolism may affect the resistance of periodontal structures to inflammatory influences. Pregnancy-associated hormonal fluctuations can further intensify the response of gingival tissues to dental plaque. However, periodontal inflammation is multifactorial, and its severity may also depend on oral hygiene, nutritional status, smoking exposure, gestational age, and pre-existing periodontal disease. Therefore, the relationship between iron deficiency anemia and periodontal disorders should be evaluated by considering both systemic and local factors. The combined analysis of clinical, functional, and laboratory indicators may provide a more comprehensive understanding of periodontal changes during pregnancy.

Conclusion

Iron deficiency anemia during pregnancy may be an important systemic factor associated with alterations in periodontal tissue condition. The combined influence of reduced iron availability, impaired oxygen transport, and pregnancy-related hormonal changes may contribute to increased susceptibility to gingival inflammation. Clinical and functional assessment makes it possible to identify early periodontal abnormalities and evaluate their potential association with hematological status. Regular dental examinations, professional oral hygiene, adequate nutritional support, and timely treatment of iron deficiency should be considered important components of preventive care. Cooperation between dentists, obstetricians, and hematologists is essential for providing comprehensive healthcare to pregnant women. Further clinical investigations involving larger patient populations are necessary to clarify the mechanisms connecting iron deficiency anemia with periodontal tissue alterations.

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