



ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating 2017: 5.03
TPI 2017; 6(5): 79-81
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www.thepharmajournal.com
Received: 03-03-2017
Accepted: 04-04-2017

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Clinical evaluation of 0, 2% hyaluronic acid containing gel “gengigel” in the local treatment of pregnant women with generalized periodontitis on the background of IDA

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Abstract

State of the oral cavity during pregnancy has attracted the attention of many researchers as periodontal and tooth diseases can cause "dental chronioseptic source of inflammation." It was discovered that pregnant women with extragenital diseases, including hematologic, increase the likelihood of periodontal lesions. One of the most important factors in the pathogenesis of periodontal tissue diseases is inflammation that develops in response to an irritant of pathogenic microflora of periodont and causes complex microcirculatory, hematological, immunological and connective tissue reactions. We reliably established high efficiency of "Gengigel" (Racerfarma s.r.l., Italy) in treatment of patients with generalized periodontitis of pregnant women with IDA. Using clinical methods of examination, pronounced anti-inflammatory and regenerative properties of the drug were confirmed when applied locally to the oral mucosa. A local treatment of generalized periodontitis in pregnant women with IDA in the background with preparation "Gengigel" is suggested.

Keywords: generalized periodontitis, pregnancy, iron deficiency anemia, "Gengigel" hyaluronic acid

Introduction

Numerous recent studies have shown that the inflammatory process that occurs in response to chronic irritation caused by pathogenic periodont microflora takes an important place in pathogenesis of periodontal tissue diseases and provokes the whole complex of hematological, immunological, microcirculatory and connective tissue responses to injury. One of the major problems of modern dentistry is a high prevalence of periodontal tissues disease in pregnant which is associated with ineffective prevention and treatments for these diseases. During pregnancy a woman's body is changing and it is difficult to distinguish physiological compensatory mechanisms from pathological manifestations, including the emergence and development of dental diseases. Particular attention should be given to the course of periodontal diseases in pregnant women with accompanying diseases. One of the most common diseases that complicates pregnancy is iron deficiency anemia. During the disease protein and mineral metabolisms are impaired, leading to functional and morphological changes in all organs and tissues. At present the dental science has developed many methods and means of treatment of chronic generalized periodontitis, expanded the understanding of the pathogenesis of the disease, found links between periodontal tissues problems and overall health. And, despite this, little studies were made about the peculiarities of GP in pregnant women, with IDA at the background. The development of a comprehensive drug for treatment of generalized periodontitis in pregnant women with IDA is still a very actual issue as it is extremely important to prevent the formation of dental chronioseptic sources of infection in the expectant mother. Numerous studies have shown the correlation between the development of chronic inflammatory or degenerative process and changes in metabolism and structure of surface gums epithelium which causes violation of its barrier functions. Significant role in preventing the penetration of toxins in the tissue perform hyaluronic acid and sulfated glycosaminoglycans which ensure trophic and plastic functions of connective tissue. Hyaluronic acid is able to connect a large number of water molecules, which give tissues elasticity and resistance to external stimulus. The protective effect of hyaluronic acid is manifested in its ability to bind active ingredients of chemicals and toxins. It is known that bacterial factors cause splitting in hyaluronic acid by hyaluronidase enzyme, leading to disruption of tissue structure, disturbance of tissue breathing,

increased permeability of the capillary walls, edema formation, which creates favorable conditions for microorganisms aggression. As a result of all previous processes a disruption of healing tissue happens.

Thus, the search for new drugs which should include the main components of a physiologically healthy oral mucosa acting as a barrier, and provide resistance to damaging factors becomes extremely important. That's why "Gengigel" (Racerfarma s.r.l., Italy) tubes based on macromolecular 0.2% hyaluronic acid has attracted our attention.

Hyaluronic acid is a natural component of healthy oral tissues. The molecular structure of hyaluronic acid formed by glycosaminoglycans, is able to bind water, specific proteins, prevent the process of local inflammation, regulate cell permeability, reduce capillary permeability. It is known that bacterial factors cause splitting enzyme hyaluronidase hyaluronic acid, leading to disruption of tissue structure, disturbance of tissue breathing, increased permeability of the capillary walls, edema formation, which creates favorable conditions for microorganisms aggression. As a result of all previous processes - disruption of healing tissue.

In this bunch of obvious search for new drugs, which include the main components of a physiologically healthy oral mucosa acting as a barrier, and provides resistance to damaging factors. That's why our focus has attracted drug "Gengigel" (Racerfarma s.r.l., Italy) tubes based on macromolecular 0.2% hyaluronic acid. Hyaluronic acid is a natural component of healthy oral tissues. The molecular structure of hyaluronic acid, which is formed by glycosaminoglycans, is able to bind water and specific proteins, prevent local inflammation processes, regulate cell permeability, reduce the permeability of capillary walls.

The aim of the study: Evaluating the effectiveness of the drug "Gengigel" (Racerfarma s.r.l., Italy) in the prevention and local treatment of generalized periodontitis of pregnant women with IDA.

Materials of the research: The study involved 40 pregnant women (aged 18-34 years) II-III trimester with mild form of IDA generalized periodontitis (initial- first stage) that were in outpatient treatment at the Department of Dental Postgraduate Education IFNMU. The proposed way to treat local GP lies in the following steps: patients receive hygienic therapy and then are prescribed oral rinse solution "Octenisept" - diluted with boiled water in a ratio of 1: 3 2 times a day for 5 days and applications with "Gengigel" 3 times daily for 3 weeks.

Diagnosis of periodontal diseases in female patients was conducted in accordance with the classification NF Danilevsky (1994) with the addition Biloklytska GF (2007). The effectiveness of the proposed local health-care complex was performed using index assess of the periodontal status according to the following indicators: Hygiene Code of Green- Vermilyon, Muhlemann bleeding index, size of periodontal pockets, Ramfyord index.

Results and discussion: At the primary exams, patients complained about discomfort, painful teeth brushing, bleeding gums, gum edema, halitosis. Objectively observed: gums mucosa bluish, hyperemic and swollen, swollen gum edge does not adjoin the surface of the teeth, soft and hard deposits. The depth of periodontal pockets was in the range of 2.0 to 3.0 mm. After treatment Oral hygiene Green- Vermilyon index decreased by 13.86 times $p < 0,001$ (before treatment

was $0,97 \pm 0,06$ points, and after - $0,07 \pm 0,01$ points). Muhlemann bleeding index before treatment $4,13 \pm 0,29$ points, and after - $0,35 \pm 0,11$ points, ie decreased by 11.8 times ($p < 0,001$). The depth of periodontal pockets before treatment was $2,88 \pm 0,09$ mm and after - $2,30 \pm 0,07$ mm, so the figure became 1.25 times lower ($p < 0,001$). Ramfyord index before treatment was $4,12 \pm 0,09$ points, and after treatment - $3,05 \pm 0,12$ points, ie decreased by 1.35 times ($p < 0,001$).

The results of periodontal status of pregnant women II-III trimester with mild-moderate IDA and with generalized periodontitis after the first stage of our local treatment proposed, confirm the validity of the latter.

Conclusions

Using the proposed method of local treatment of SE enables to stabilize the process and ensure the long-term remission. The proposed method is simple, effective and safe to use on which Ukraine received a patent for utility model number 89588 from 25.04.2014 year. Bulletin №8. U Application number 2013 13871 of 29/11/2013.

Prospects for further research: It is planned to implement a new set of preventive measures we have developed in clinical practice for pregnant women with GP on initial- mild stage with the background of IDA, which will improve the clinical laboratory and biochemical parameters, and will help to prevent the progression of the pathological process in periodont of these patients.

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