Western European Journal of Medicine and Medical Science
Volume 2, Issue 5, May, 2024
https://westerneuropeanstudies.com/index.php/3
ISSN (E): 2942-1918 Open Access| Peer Reviewed

ASSESSMENT OF THE CLINICAL EFFECTIVENESS OF THE USE OF AUTOPLASMA IN THE COMPLEX TREATMENT OF HYPERTROPHIC GINGIVITIS IN PREGNANT WOMEN.

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Abstract: Gingivitis in pregnant women is a gum disease characterized by swelling and bleeding. Approximately 60% of pregnant women develop this condition [1]. A peculiarity of gingivitis in pregnant patients is its cause, which is associated with hormonal changes that occur in the body during pregnancy. Hormonal fluctuations characteristic of this period can provoke the development of slight inflammation of the oral mucosa, making it especially sensitive. When brushing your teeth, gum tissue becomes more vulnerable and susceptible to damage, which leads to bleeding [2]. Despite the research, the features of the development of inflammatory periodontal diseases in pregnant women still remain insufficiently studied. In this regard, prevention, diagnosis and treatment of gingivitis in pregnant women remain insufficiently effective [3]. Moreover, during pregnancy, many therapeutic methods and medications cannot be used or can only be used if the risk to the health of the mother or fetus is comparable to gingivitis.
Keywords: condition of periodontal tissues, pregnant women, hypertrophic gingivitis, plasma therapy, autoplasma, PRP terapy, prevention of dental diseases.

Hypertrophic gingivitis has a negative impact on the course of pregnancy and increases the likelihood of complications in the perinatal period.

It is known that pregnant women are often at risk of developing oral diseases. This is due to changes in the immune system. During pregnancy, pathological changes often lead to a noticeable increase in tissue volume. The text discusses examination methods for assessing the oral health of pregnant women and presents research results highlighting the superior efficacy of using autoplasma over conventional treatments for hypertrophic gingivitis in pregnant individuals [4].

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Inroduction. During pregnancy, the risk of oral health problems increases markedly, such as exacerbation of caries, periodontal disease and increased inflammatory processes in the oral mucosa. For instance, if the demineralization intensity is 0.22 in non-pregnant women, it climbs to 0.43 in the first trimester of pregnancy, then rises to 0.96 in the second trimester, and eventually drops to 0.58 in the third trimester. According to A.A. Aksameya (1979), the proliferation of chalky spots follows an arithmetic progression with each pregnancy trimester. The Gingivitis Index (GAI) surges from 0.6 to 10.63 in the third trimester, with hyperplastic forms of gingivitis prevailing. It's important for pregnant individuals to be aware of these potential oral health challenges and to seek proper dental care to address them. Maintaining good oral hygiene practices, regular dental check-ups, and seeking appropriate treatment for any oral health issues that arise during pregnancy are crucial for the overall health and well-being of both the mother and the developing fetus. [4].

The utilization of autoplasma (autologous platelet-rich plasma) in the treatment of hypertrophic gingivitis in pregnant women is an intriguing approach. Autoplasma contains a high concentration of platelets, which release growth factors that can promote tissue healing and regeneration. This method has shown promise in various medical and dental applications for promoting tissue repair and reducing inflammation. In 2003, Doctor of Medical Sciences, Professor Akhmerov and Candidate of Medical Sciences R.F. Zarudiy developed a method of using an injectable form of platelet autoplasma, which was called “Plazmolifting TM”. At present, autoplasma enriched with platelets is extensively employed in various medical domains such as surgery, dentistry, traumatology, orthopedics, sports medicine, cosmetology, dermatology, and combustiology [6].

Platelet autoplasma plays a crucial role in modulating and regulating the activity of primary, secondary, and tertiary growth factors, thereby influencing all phases of regeneration concurrently. Growth factors are hormone-like polypeptides with a wide range of biological effects that promote the differentiation of stem cells, accelerate bone metabolism and collagen synthesis, and also stimulate the formation of new blood vessels (angiogenesis)[7].

Plasma also contains proteins, amino acids, trace elements, hormones, and vitamins in a natural combination. The use of plasma therapy in dental practice promotes local stimulation of regeneration processes, improvement of microcirculation and cellular metabolism. The goal of plasma therapy is not only to reduce inflammatory processes in periodontal tissues, but also to initiate the natural process of restoring the color, shape and structure of the gums, as well as to prevent further bone loss. The use of the patient's own plasma guarantees the safety of treatment, as it avoids the risk of infection and mutagenic effects.

Material and research methods. This research was conducted at the Tashkent Medical Academy in the dental clinic of the Department of General Dentistry and Maxillofacial Surgery from 2023 to 2024. In the study involving 90 pregnant women aged 20 to 35 diagnosed with hypertrophic gingivitis in the second trimester of pregnancy, the research plan entailed several stages. These included:

1. Registering the dental condition based on the CPU index of teeth and surfaces.

2. Identifying areas of demineralization utilizing a 10-point blue scale (A.A. Aksamey, 1979).

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3. Determining bleeding of the gingival papillae using the PBI method (Mulleman).

4. Assessing the hygiene index following Green-Vermilion's method from 1964, PMA, and KPI. The degree of gum hypertrophy was determined by assessing the ratio to the crown surface in areas of 1/3, 2/3 or more of all crowns. In addition, all patients had reporting forms.

All groups of women studied were trained in oral hygiene using toothpastes containing fluoride (Aquafresh, Colgate). The PMA (C. Parma, 1960) index was employed to identify the location of the inflammatory condition at the gingival margin.

The PMA index, developed by Carlo Parma in 1960, is a method used to determine the localization of the inflammatory process at the gingival margin. It assesses the condition of the papillary, marginal, and attached gingiva to classify the severity of periodontal disease. This index helps in diagnosing and monitoring the progression of gingival inflammation and periodontal disease. The gingival papilla bleeding index - PBI (H.P. Muhlemann, Saxer, 1975) was used to assess the degree of gingival bleeding. The Complex Periodontal Index (KPI) developed by P.A. Leus in 1988 is a comprehensive method used to assess the overall condition of periodontal tissues. It takes into account various parameters such as gingival bleeding, plaque accumulation, probing pocket depth, and clinical attachment loss to provide a detailed evaluation of periodontal health.

In your statement, you mentioned that statistical comparison of the obtained indices was performed using Student's t-criterion. This indicates that you used Student's t-test to compare the KPI scores between different groups or time points. The t-test is a statistical method used to determine if there is a significant difference between the means of two groups. By using this test, you can assess whether there are statistically significant differences in periodontal health as measured by the KPI between different groups or over time.

It sounds like the first group of pregnant women received a comprehensive treatment plan aimed at improving their oral health during pregnancy. The treatment included several components such as the removal of dental deposits, oral cavity sanitation, prophylactic work with fluoride-containing products, and health education activities. Additionally, remineralizing therapy was utilized as needed to address caries at the stain stage, and traditional anti-inflammatory medications were used to manage hypertrophic gingivitis. It's essential to consider the potential impact of these interventions on the periodontal health of the pregnant women and to assess any changes in their periodontal status using appropriate measures such as the Complex Periodontal Index (KPI) that you mentioned earlier. This will help in evaluating the effectiveness of the treatment plan in improving their periodontal health during pregnancy.

It seems that the second group of pregnant women also received a comprehensive treatment plan aimed at improving their oral health during pregnancy. The treatment included similar components to the first group, such as the removal of dental deposits, oral cavity sanitation through dental treatment, and preventive work with fluoride-containing preparations. Managing hypertrophic gingivitis with anti-inflammatory therapy and autoplasm (autologous platelet-rich plasma) is a multifaceted approach that addresses both the inflammatory component of the condition and promotes tissue healing and regeneration. Anti-inflammatory

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therapy can help reduce gingival inflammation, while autoplasm, as previously mentioned, has the potential to aid in tissue repair and regeneration.

To prepare PRP, the following steps must be followed:

1. Draw whole blood through venipuncture and place it in a tube with sodium citrate and dextrose.
2. Immediately after blood collection, centrifuge the blood with gentle pressing at 3000 rpm for 3 minutes.
3. Carefully transfer the top layer of supernatant plasma containing platelets to another sterile tube without anticoagulant.
4. Re-centrifuge this tube at a higher speed (hard mode) of 4000 rpm for 15 minutes to obtain the platelet concentrate.
5. The bottom 1/3 of the volume contains platelet rich plasma (PRP) and the top 2/3 contains platelet poor plasma (PPP).
6. The final step is to remove the top platelet-poor layer and the PRP is ready for injection.

The treatment plan for the third group of pregnant women also focused on improving their oral health during pregnancy. The components of the treatment included the removal of supra- and sub-gingival dental deposits, preventive work with fluoride-containing preparations, as well as sanitary and educational work.

Preventive follow-up of all pregnant women was performed after 3 months with evaluation of the following parameters: hygiene index (HI), clinical periodontal index (CPI), and periodontal index (PI).

Table 1

Dynamics of the Green-Vermillion hygiene index during pregnancy (2nd, 3rd trimester and 12 months after delivery)

Group of pregnant women	Initial visit	Repeat visit	12 months after delivery
First group Pregnant women undergoing the treatment phase (I-20 women)	2,75 ± 0,08	1,5 ± 0,07	0,5 ± 0,04
Second group Pregnant women, using autoplasma (PRP) -(II, 50 women)	2,30 ± 0,06	1,1 ± 0,04	0,3 ± 0.02
Third group Pregnant women previously sanitized (control group) (III- 20 women)	2,20 ± 0,07	1,3 ± 0,05	1,15 ± 0,04

Results and Discussion. Table 1 shows that at the initial examination, the oral hygiene status of all the observation groups was unsatisfactory. This consistency in baseline periodontal health status is important for comparing the effects of different treatment interventions on the pregnant women's periodontal health over time. By examining changes in periodontal indices and maintenance assessment over subsequent examinations in each group, researchers can assess the relative impact of medical treatment alone, medical treatment with

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PRP therapy, and previous sanitation on improving periodontal health during pregnancy. In all three groups at the first examination, the average IG was 2.30-2.20. These patterns were also found in periodontal indices, PMA (fig.1).

Table 2
Dynamics of PI, PMA, PBI.

Group of pregnant women	**Initial examination (M±m)**		**Re-inspection**		**Examination 12 months after delivery**		
	PI	**PBI**	**PI**	**PBI**	**PI**	**PMA**	**PBI**
First group Pregnant women undergoing the treatment phase (I-20 women)	1,9 ±0,04	1,8±0,02	0,4±0,07	**0,05**±0,04	0,2	**8%**	**0,3**±0,03
Second group Pregnant women, using autoplasma (PRP) -(II, 50 women)	1,8±0,03	1,5±0,03	0,2±0,01	0,3±0,05	0,1	**2%**	**0,15**±0,04
Third group Pregnant women previously sanitized (control group) (III-20 women)	1,5±0,02	1,7±0,01	0,5±0,02	0,8±0,03	04±0,02	**12%**	**0,16**±0,05

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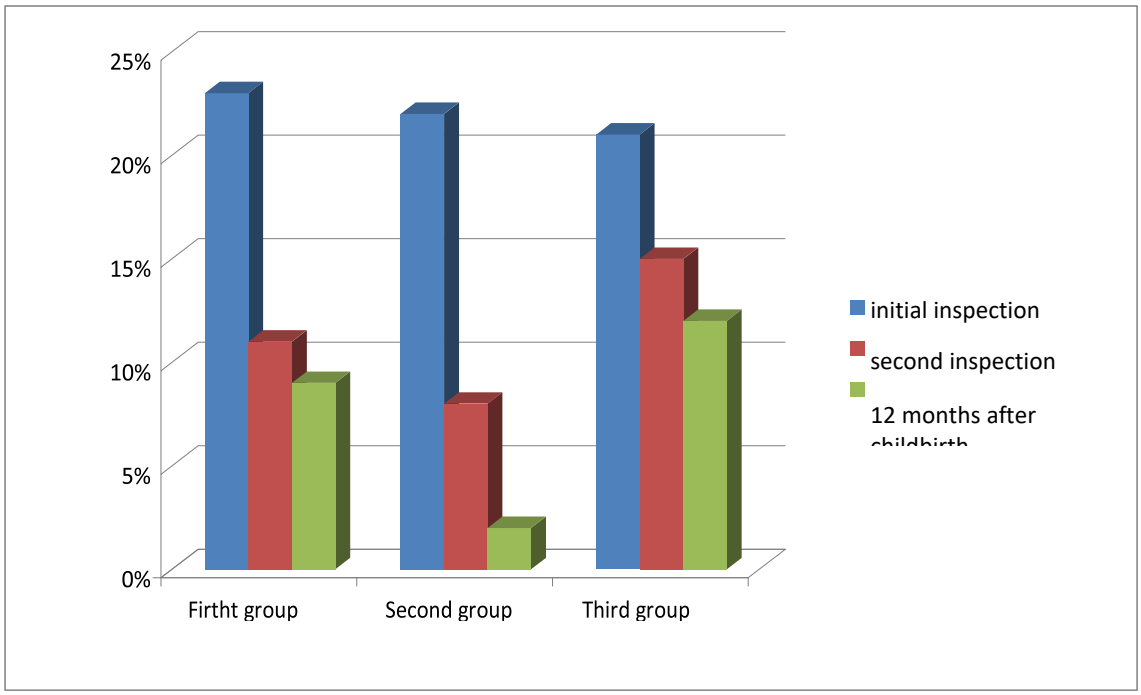

Fig. 1. Dynamics of the PMA index at primary, repeat and 1 year examinations after childbirth

That's interesting to note that the use of autologous platelet-rich plasma (PRP) in combination with medical measures resulted in an improvement in the oral hygiene status of pregnant women in groups I and II, as evidenced by a significant decrease in the IG index at subsequent examinations. This finding suggests that the addition of PRP therapy to the treatment regimen may have contributed to better oral hygiene outcomes compared to the control group (table1).

At the first visit of pregnant women of group I, IG was (1,50±0.06), against (2,75±0,07) at the initial examination; The data presented clearly demonstrate the positive impact of comprehensive medical and preventive measures on the oral hygiene status of pregnant women. In the II group, where autologous platelet-rich plasma (PRP) was used in combination with medical measures, the IG index decreased from 2.20±0.05 to 1.10±0.04, indicating a significant improvement in oral hygiene. This reduction suggests that the addition of PRP therapy contributed to better oral hygiene outcomes in this group.

The data from Table 2 clearly illustrate the positive impact of the treatment interventions on the periodontal and PMA (Plaque Metabolism Activity) indices in pregnant women. In group I, the periodontal index decreased from 1.8±0.03 at the primary examination to 0.3±0.08 at the secondary examination, indicating a significant improvement in periodontal health. Additionally, the PMA index decreased to 11% at 6 months and further to 9% at 1 year, compared to 23% at the primary examination, demonstrating a substantial reduction in plaque metabolism activity over time.

Conclusions. The study underscores the efficacy of treatment and preventive measures, particularly when used in conjunction with PRP therapy, for addressing hypertrophic gingivitis

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during pregnancy. The combined approach is demonstrated to be gentle, rapid, and safe for both the expectant mother and the fetus. The study also emphasizes the straightforward nature of the PRP technique, despite its substantial therapeutic impact, as indicated by a reduced occurrence of dental diseases in pregnant women who received PRP therapy.

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