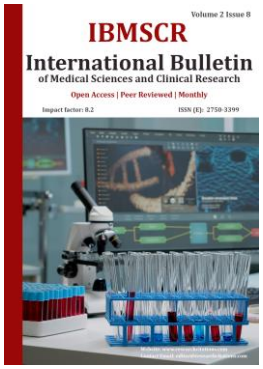

COMPARATIVE EVALUATION OF THE USE OF VARIOUS MATERIALS AFTER TOOTH EXTRACTION IN THE PREIMPLANTATION PERIOD.

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ANNOTATION

The studies involved 30 patients. To preserve the hole after tooth extraction, 2 types of osteoplastic materials were used: xenomaterial (group 1), as well as material based on hydroxyapatite with collagen and lincomycin "Kollapan-L" (group 2). It was established that the dominant microbiota in the studied samples were representatives of obligate anaerobic and microaerophilic bacteria belonging to taxonomic groups: peptostreptococci, propionibacteria, bacteroids, fusobacteria and other gram-negative anaerobic bacteria, as well as gram-positive microaerophilic actinomycetes and streptococci. When analyzing the data on the healing of the socket, it was noted that the best level of soft tissue epithelization was obtained when using DCS. The wound was completely filled with regenerating soft tissues by day 7 after removal in 81.6% of cases. Preservation of the socket using DCJ allowed creating optimal conditions for dental implantation. The level of regenerated bone tissue in height was 94.8% of the initial values. In the horizontal direction, this figure reached 96.3%.

Keywords. Bone atrophy, demineralized lamb bone, microflora, preservation.

The purpose of the study-is to increase the effectiveness of rehabilitation of patients after tooth extraction in the preimplantation period.

АННОТАЦИЯ

В исследованиях участвовали 30 пациентов. Для презервации лунки после удаления зуба были использованы 2 вида костнопластических материалов: ксеноматериал (группа 1), а также материал на основе гидроксиапатита с коллагеном и линкомицином «Коллапан-Л» (группа 2). Установлено что, доминирующей микробиотой в исследованных образцах являлись представители облигатно-анаэробных и микроаэрофильных бактерий, относящихся к таксономическим группам: пептострептококки, пропионибактерии, бактероиды, фузобактерии и другие грамотрицательные анаэробные бактерии, а также грамположительные микроаэрофильные актиномицеты и стрептококки. При анализе данных о заживлении лунки отмечено, что наилучший уровень эпителизации мягких тканей получен при использовании ДКЯ. Рана полностью заполнялась регенерирующими мягкими тканями к 7 суткам после удаления в 81,6% случаях. Презервация лунки с использованием ДКЯ позволила создать оптимальные условия для проведения дентальной имплантации. Уровень регенерированной костной ткани по высоте составил 94,8% от первоначальных значений. В горизонтальном направлении этот показатель достиг 96,3%.

Ключевые слова. Атрофия кости, деминерализованная кость ягненка, микрофлора, презервация.

Materials and methods of research. The studies involved 30 patients after tooth extraction. 2 types of bone-plastic materials were used to condom the hole after tooth extraction: xenomaterial (group 1), as well as a material based on hydroxyapatite with collagen and lincomycin "Collapan-L" (group 2). As part of the study, 43 dental implants were installed at the site of a previously performed condom.

For use, we have prepared a bravo xenograft from the bone tissue of newborn lambs, demineralized by the method of V.I.Savelyev (1983) and preserved by the method of V.F.Parfentieva (1986). The preparation of the graft was carried out from the flat and tubular bones of unborn or newborn lambs in the first 5 days from the moment of birth. The simplicity of harvesting demineralized lamb bone (DC) in non-sterile conditions, an unlimited amount of raw materials, gives access to use by a wide range of practitioners.

Before the clinical application of the developed method, a cultural (bacteriological) research method was used to assess safety. It was found that the dominant microbiota in the studied samples were representatives of obligate-anaerobic and microaerophilic bacteria belonging to taxonomic groups: peptostreptococci, propionibacteria, bacteroids, fusobacteria and other gram-negative anaerobic bacteria, as well as gram-positive microaerophilic actinomycetes and streptococci. Thus, the obtained results of the bacteriological study allow us to consider DLB safe for insertion into the hole of the removed tooth of the patient. At the clinical stage, in accordance with the research program, in the postoperative period after tooth extraction, the patient's condition was monitored during the first 14 days.

Characteristics of the postoperative period on the 7th day in patients after tooth extraction with simultaneous condom

Postoperative period	Groups	
	DLB	Collapan-L
Increase in body temperature	-	-
Enlargement of regional lymph nodes	-	-
Swelling of the soft tissues of the face	-	1
Swelling of the oral mucosa	-	1
Restriction of mouth opening	-	-
Pain syndrome in the postoperative area	1	2
Phenomena of the alveolite of the hole	-	-
Migration of bone material	-	-

Cases of alveolitis, or an inflammatory process in the removal area in the postoperative period, were not detected in any clinical case. This fact, in our opinion, is due to the fact that the use of bone-plastic material stabilizes the blood clot in the well, which has a beneficial effect on regenerative processes. When analyzing the data on the healing of the well, it was noted that the best level of epithelization of soft tissues was obtained with the use of DCA. The wound was completely filled with regenerating soft tissues by 7 days after removal in 81.6% of cases. However, in the group with the use of "Collapan-L", visible soft tissue edema persisted in 9.7% of cases. In these cases, puffiness was not observed on the 10th day. It should be noted that the level of soreness in 1-3 days after removal in patients with DLB was the lowest among all comparison groups. On the 14th day, all patients in the compared clinical

groups had a favorable clinical picture and postoperative sutures were removed. Preimplantation examination of patients 4 months after extraction showed that the condition of the mucous membrane in the area of previously performed removal with a condom does not differ in color or structure from the surrounding soft tissues. In the DCA group, bone loss was 0.5 mm (5.4%) vertically and 0.4 mm (5.1%) horizontally. When using the Collapan-L material, the vertical bone loss was 1.8 mm (18.8%), and the horizontal loss was 1.3 mm (17.8%). Cone-beam computed tomography confirmed that the use of osteoplastic materials in the condom of the hole after removal has a positive effect on the processes of restoration and regeneration of bone tissue in the area of future implantation. The condom of the well with the use of DLB allowed to create optimal conditions for dental implantation. The level of regenerated bone tissue in height was 94.8% of the initial values. In the horizontal direction, this indicator reached 96.3%. According to CT data, the regenerate formed in the area of the well of the removed tooth had a fine-grained pattern without pathological inclusions. When using "Collapan-L" as a bone-plastic material, the level of bone tissue formation was 83.0% in the vertical direction. It should be noted that according to CT data, the boundaries of the deposited material in the area of the walls of the alveoli were indistinct, which indicates the ongoing process of bone tissue regeneration. The results of the morphometric study showed that the tissue reaction in the regeneration zone is quite variable. In the group with the use of DLB, the resulting regenerate consisted of bone structures of varying "maturity" and severity. 14 weeks after the reservation, the bone tissue was a spongy substance of bone, in which bone anastomosing trabeculae were developed, which in the peripheral part were defined as reticular-fibrous bone tissue. There were no signs of inflammation, edema, leukocyte infiltration, vascular damage and the absence of microbial colonies around the bone fragments, which indicated in favor of the sterility of the implanted material. It must be said that the fragments of DLB are fully integrated into the total bone regenerate, which is manifested by the absence of a connective tissue layer between the surface of the dentin and the forming bone substance. After 16 weeks, there is a change in the structure of the reticulofibrous bone tissue, which is rebuilt into lamellar. On histological sections, the newly formed bone tissue is encrusted with small fragments of DLB, which are covered with a layer of bone plates with a small number of osteocytes between them. The detected state of the implanted material, on the one hand, indicates high osseointegrative properties, potentially possible osteoinduction. At the same time, the low cellularity of lamellar bone tissue, the absence of its own feeding vessels creates conditions for slowing down the resorption of the material and subsequent remodeling of the regenerate. In general, after 16 weeks, the formed bone tissue differs little from the native one, so it can be concluded that by this time the reparative processes in the well have been completed. In the obtained trepan biopsy, close contact between the newly formed bone and a small part of the xenomaterial particles is visualized. Evaluation of the group using "Collapan-L" in the obtained bone tissue regenerates revealed trabeculae from newly formed bone penetrating small fragments of biomaterial inside the trabeculae, with intensive biodegradation and without an inflammatory component. At the age of 16 weeks, the granules of bone material are surrounded by bone regenerate and fibrous connective tissue, as well as areas of reticulofibrous bone tissue, there was a tendency to completely replace the defect with newly formed bone tissue.

The survival rate of dental implants after the use of DLB was 100%. According to the X-ray examination, bone regenerate was determined, the tight fit of bone tissue to the wall of

the dental implant, the structure of the newly formed bone did not differ from the surrounding one. The level of vertical resorption in the area of implants in the cervical region 6 months after prosthetics did not exceed 0.1 mm.

The study showed that the condom of the hole after tooth extraction in the preimplantation period leads to a significant decrease in the level of bone resorption, prevents the development of alveolitis phenomena and ensures the installation of dental implants in optimal clinical conditions without additional surgical interventions aimed at increasing the volume of bone tissue. The best results with the condom of the well were observed in patients in groups using xenomaterial. In these groups, no postoperative complications were detected in patients, a minimum level of resorption was recorded, which was confirmed by morphometric analysis and CT data.

The results. obtained indicate that presentation events are an essential element of preimplantation preparation, which allows avoiding additional surgical interventions to eliminate bone resorption. The developed method with the use of DLB has shown its effectiveness in comparison with "Collapan-L", the raw materials for DLB are actually free, it is easily harvested and stored.

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