and surface energy (wettability) of the actual surface. The hardness is different comparing the C-C (matrix and fibre, respectively) and PyG layer. The problem of wettability is in fact the measurement can be influenced directly by roughness. Every scratch on the surface can play the role of a capillary in which a liquid rises up. This happens if the contact angle θ is acute. At the other side the liquid decreases in the capillary for obtuse contact angles θ. In other words the rough surface has usually a good wettability in comparison with smooth surface, if we presume use of liquid with good wetting ability. We will get opposite results by use of liquids with bad wetting ability. Both of these factors are proved in the magnitude of the contact angle – wetting angle θ. We have found the very pronounced dependence of the surface wetting angle on the surface type.

Conclusions

- the lowest friction coefficient was observed in the ground samples without a PyG layer
- the highest friction coefficient was observed in the unground samples with a PyG layer
- the best wear resistance was observed in the samples covered by PyG layers, almost independently on the substrate grinding (under the layer)
- the lowest contact angels was observed in the samples with a PyG layer

Acknowledgement

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LASERACUPUNCTURE WITH NEW ACUPUNCTURE NEEDLE AS ESSENTIAL PART OF COMPLEX TREATMENT AFTER ALLOGENIC RHINOPLASTY

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Introduction

Aesthetic surgery of innate and acquired nose pathology takes 58,9% of the total amount of aesthetic operations made in cranio-maxillofacial area [2]. It makes to look for new methods of complications prophylaxis, complex treatment and rehabilitation procedures of pathology mentioned above after the operation. Last time great attention of specialists is paid to the treatment with laser which is introduced into the practice and is used in different fields of medicine with success. But till our days there is no information about expediency and effectiveness of acupuncture treatment application (acupuncture, laseracupuncture) for patient's rehabilitation after rhinoplasty.

Aim

Study of effectiveness of laser acupuncture application as a part of complex allogenic rhinoplasty postoperative treatment (experimental and clinical cases).

Methods

Experimental study was performed on 28 rabbits of the same stock and weight. Line slit of nasal bone, sterilized cut allogenic transplant moving under periosteum were performed under intravenous anesthesia of natria thiopental and local infiltration anesthesia (Novocaini 1%). The wound was closed in layers with atraumatic needle and materials (vicrilum). Animals were divided into two groups. Laser acupuncture treatment was applied for the animals of 1-st group (14 animals). The following acupoints were irritated with special acupuncture needle with optical glass fiber: Li4 (hegu), Li19 (hejiao), GV26 (shuigou). Treatment course consisted of 10 sessions. Power density of the light flow was not more than 5mW/cm^2 to one AP.

Laseracupuncture treatment was carried out with acupuncture needle (patent № 924). This needle contains

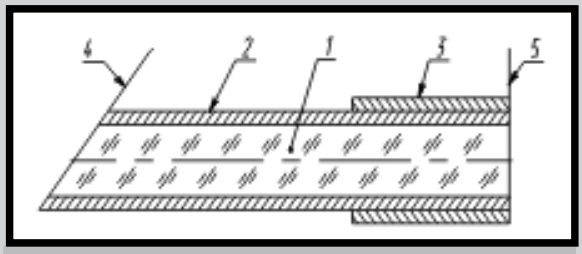

FIG.1. Acupuncture needle (Patent of Republic of Belarus N 924), 1-cylinder made from transparent material appropriated for laser emission; 2-steel covering; 3- steel bush on surface of which thread for needle insertion is located; 4-first end of the light pipe ignited into an oblique cut of the needle; 5-second end of the light pipe is fixed into the butt of the needle and shaft.

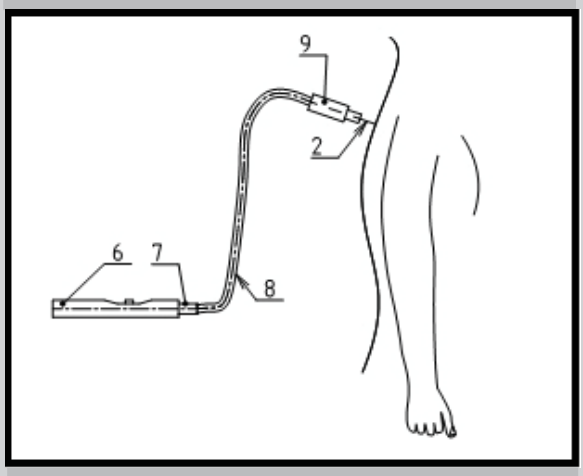

FIG.2. Scheme acupuncture needle application (Patent of Republic of Belarus No 924): 2-pointed end of the needle with steel covering for insertion into the acupuncture point; 6-body of laser; 7-special point of the flexible light pipe; 8-laser stop; 9-acupuncture needle with light pipe.

cylindrical trunk with its pointed end made from different metal. Period of treatment session is minimized due to simultaneous stimulation of acupuncture point by laser emission and mechanic insertion of the needle. Dissimilar metals are layer-by-layer, internal layer is a transparent metal. Instrument described above permit to irritate the acupuncture points by pointed end of the needle and by laser emission which pass through trunk from transparent metal.

2-nd group was control one and animals had ordinarytreatment course. Morphological study was performed 24 hours after the operation, 3, 7, 14, 21 days, 1, 2 months later.

We examined 42 patients in clinic. They have had rhinoplasty surgery of innate and acquired nose pathology.

All patients have had rehabilitation treatment postoperatively according to the following schema:

1. strict following of the treatment procedures,
2. local postoperative hypothermia,
3. complex antiphlogistic therapy,
4. prophylaxis of scleral haematoma,
5. redressing with keeping of plaster and change of external bandage,
6. treatment of schneiderian membrane and nose 7 days after moving off of tampon.

Patients were divided into two groups. Laser acupuncture was included into the complex of postoperative treatment for the patients of 1-st group (22 persons). 2-nd group of patients was control one. Laser acupuncture treatment course consisted of 10 sessions carried out either daily or every other day. The following acupoints were irritated by special acupuncture needle with optical glass fiber: Li4 (hegu), Li10 (shousanli), Li11 (quchi), Li19 (hejiao), Li20 (yingxiang), GB20 (fengchi), Si18 (quanjiao), St1 (chengqi), St2 (sibai), BI1 (jingming), BI2 (cuanzhu), GV25 (sujiao), GV26 (shuigou) [1,3]. Laseracupuncture treatment was carried out with acupuncture needle, patent of Republic of Belarus № 924 (FIG.1). Scheme of laser needle application is shown on the FIGURE 2.

Power density of light flow was not more than 5 mW/cm^2 for one AP. Time of its irritation consisted of 7-10 seconds to one AP. One session lasted 2 minutes at maximum.

Results

Analyzed final data showed swelling and tissue infiltration healed in postoperative scar region authentically earlier for animals of the 1-st group ($p<0,01$). Rabbits of the 2-nd group had purulent-inflammatory process in 17,8% of cases when there are no complications recorded in the 1-st group.

We have achieved the following results during examinations in clinic. Patients of the 2-nd group have had problems with breathing by nose because of mucous tunic odema to the end of the ordinary treatment course. Low level of sense of smell was restored one month later. At the same time patients of the I-st group have had considerable reduction of nose mucous tunic odema. They did not use more vasoformative medicines and sense of smell was restored.

For the patients of 1-st group clinical treatment course consisted of 10-12 days. For the patients of 2-nd group that period composed 12-14 days. 2-nd group patients kept nose swelling while 4-6 months. Patients of the 1-st group did not have nose swellings 4 weeks postoperatively. Patients of the 1-st group passed in clinic 7 days less than 2-nd group patients.

Conclusion

Laser acupuncture treatment with new laser acupuncture needle let combine two kinds of acupuncture treatment. It is effective and is to be included into the postoperative rehabilitation course for the patients after allogenic rhinoplasty. It let to recommend this method of rehabilitation of patients after allogenic phinoplasty for wide application.

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EFFECTIVENESS OF ELECTRO-ACUPUNCTURE APPLICATION COMBINED WITH REHABILITATION PROCEDURES FOR THE PATIENTS WITH TRIGEMINAL NERVE NEURITIS DUE TO TRAUMA

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Introduction

Problem of the face pain remains one of the vital and actual in modern maxillofacial surgery. Traumatic injuries to facial nerve branches, operative investigations, stomatological manipulations on mandible have been recognized to develop trigeminal nerve neuritis due to trauma in 84,2% of cases [1,4]. Paroxysm of pain progressing while mentioned above pathological processes do people unable to work. It has great social and economic sense. Last years they have told in domestic and foreign literature resources about necessity to apply acupuncture in complex treatment and rehabilitation for patients with neuralgia trigeminus. [5,6].
Our hypotheses about acupuncture effectiveness in case of its application in complex treatment of trigeminus neuritis were formed by O.N.Savitskiy's opinion that neuralgia trigeminus is initial form of neuritis.
Aim of this researche is to study effectiveness of complex electro-acupuncture stimulation combined with rehabilitation procedures in treatment of patients with trigeminal nerve neuritis due to trauma.

Materials and methods

In our experiment 68 patients were involved. 1-st group of patients (32 patients) was subjected to traditional rehabilitation treatment. It was group of control. 36 patients 2-nd group were performed traditional treatment combined with electro-acupuncture treatment consisting of 10 sessions