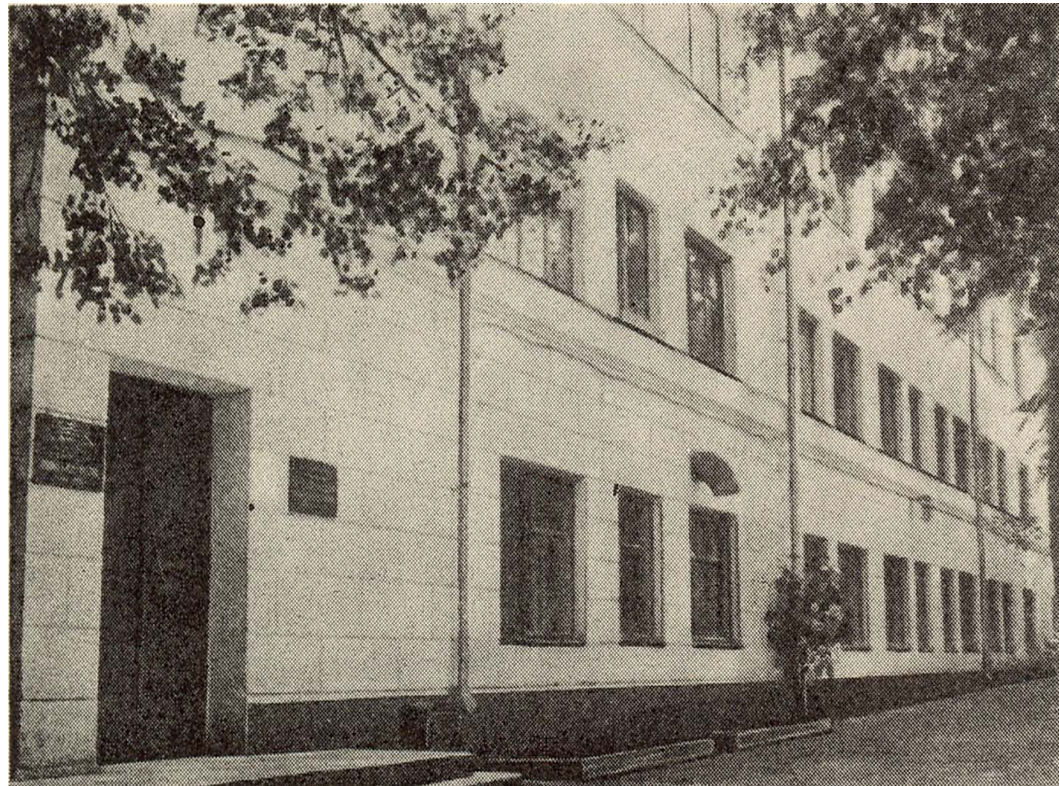




Clinical and laboratory evaluation of ozone therapy on dermatocosmetological practice

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Rosacea –chronic polyaetiological disease associated with cosmetic defects

- Disturbance of co-operations and social status
- Difficulties in professional choice
- Low subjective estimation



Pathogenesis of rosacea

- Envelopment factors
- *Demodex folliculorum*
- Gastrointestinal tract disorders
- Endocrine system pathology
- Psychic and vegetative disorders
- Vascular pathology
- High levels of vasoactive peptids and some mediators (endorphins, bradykinine, histamine, serotonin)



Vascular changes in rosacea

- Disorders of continuity and tone of vessel wall
- Disarrangement of perivascular connective tissue



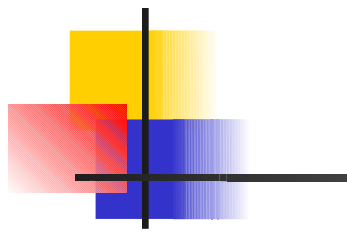
Rosacea pathogenesis (R.Marks)

- Cold wind
- Insolation
- Warm weather
- Acnae vulgaris skin lesions
- *Congenital receptivity*
- **Dermal dystrophy** **Teleangioectasia, erythema**
- **Dermal damage** **Blood backwater**
- **Inflammation** **Endothelium damage**
- **(papule and pustule) Oedema**
- **Coterine**



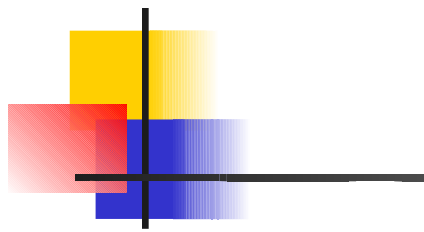
Complicated rosacea forms – result of progressive hyperplasia of connective tissue and sebaceous glands and consistent vessel amplification

- Rhinophyma and phymas of different allocations
- Ophthalmorosacea
- Steroid rosacea
- Granulomatous rosacea
- Conglobate rosacea
- Fulminating rosacea



DOIA

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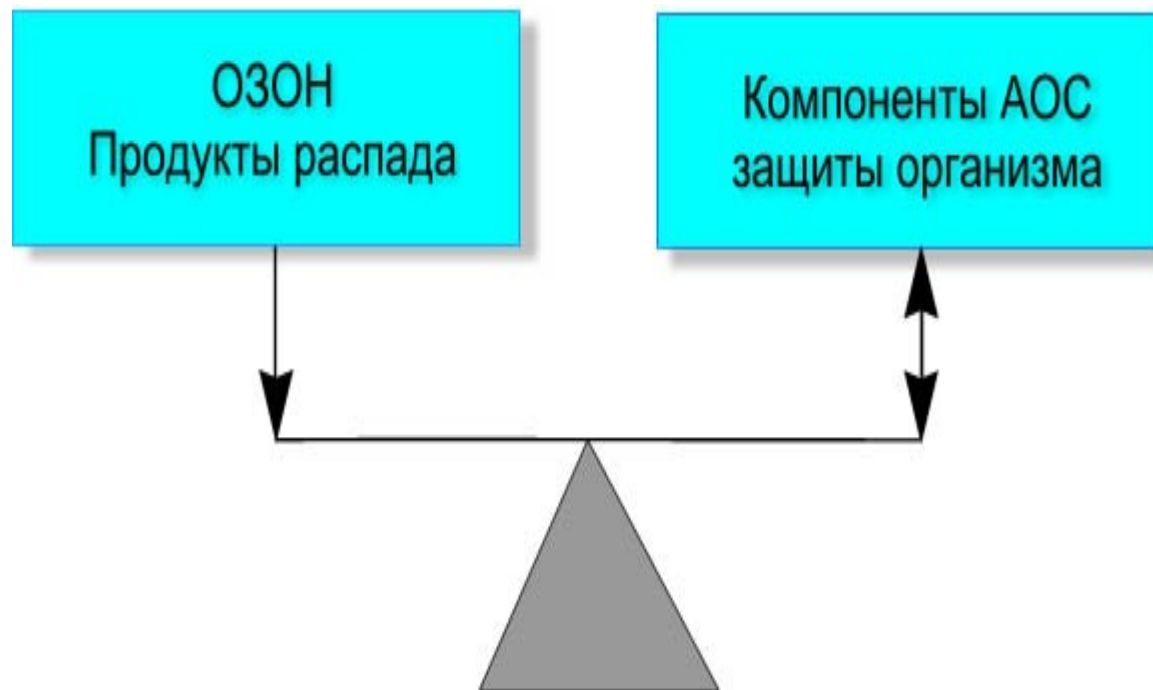
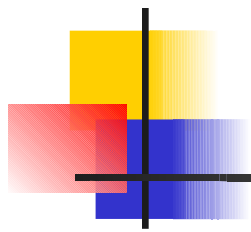






Rationale of medical ozone-oxygen mixture using for rosacea treatment

- Presence of oxydative stress condition in rosacea
- Bacillus oberonius involvement in rosacea pathogenesis
- Immune disorders
- Role of mediators (histamine, serotonin)
- Disturbance of hemostasis system, local lymphostasis
- High antioxydant ozone potential
- Bactericidal activity
- Immune modulating characteristics
- Participation in histamine and serotonin metabolism by AOS activation
- Improvement of microcirculation





Optimization of pro- and antioxidant systems

Antioxidant system:

1. Fermentative

Superoxid dismutase, catalase, glutathione peroxidase, glutathione reductase, glutathione transferase

2. Nonfermentative system

Ascorbic acid, uric acid, creatinine, taurin, albumin, transferrin, ceruloplasmin, alphotocopherol, betacarotin, bilirubin



Method description

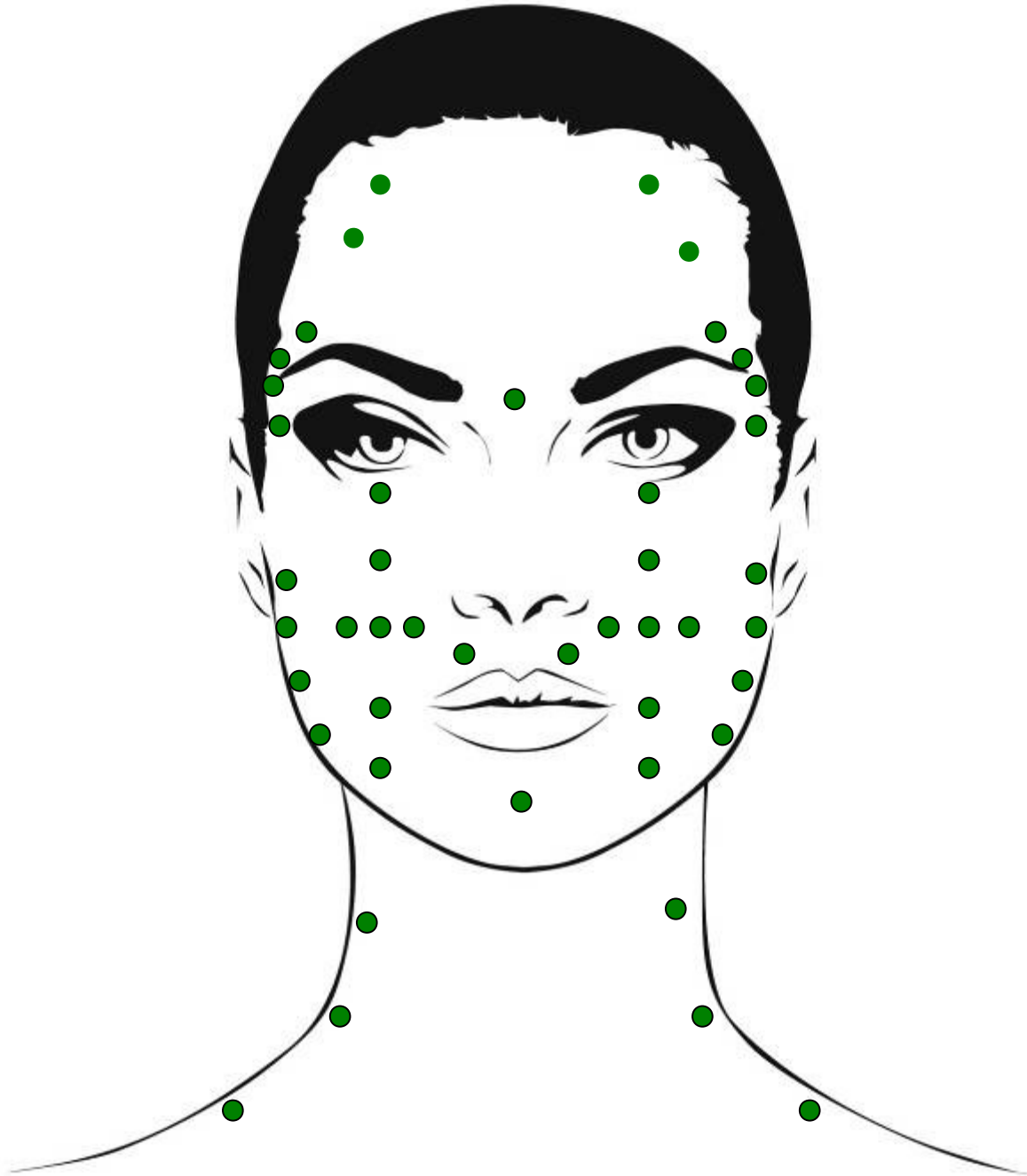
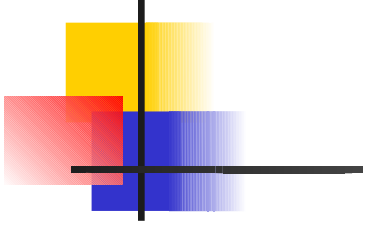
- We used local face injections of ozone-oxygen mixtures with concentration 3 000 mcg/l (patent № 2321399). The total quantity of an ozone-oxygen mixture introduced by means of micro-injections was not more than 15 cm³.
- The procedures were performed thrice a week for 4 weeks.



Ozone therapy using in dermatocosmetology

- High therapeutic efficacy of ozone therapy, low cost of equipment, its using as monotherapy or combination with complex treatment are predisposing factors of successful ozone application in dermatocosmetology. Now ozone therapy of acnae, scars, alopecia, ageing is known. But high clinical results need in laboratory and morphological substantiation.
- Ozone therapy effects as anti-ageing procedure may be connected with changes in collagen metabolism, and certainly with improvement of tissue oxygenation, activation of anti-oxydative enzymes that stay skin ageing.







Official permission documents

- Medical technology “Treatment of complicated rosacea variants”

Registration certification № ΦC-2007/055-Y
from 20.04.07, acts to 20.12.2011

- Patent № 2321399 «Method of rosacea treatment »



АГЕНТСТВО ПО ЗДРАВООХРАНЕНИЮ И СОЦИАЛЬНОМУ РАЗВИТИЮ
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ЛЕЧЕНИЕ ОСЛОЖНЕННЫХ ФОРМ РОЗАЦЕА

Усовершенствованная медицинская технология

НИЖНИЙ НОВГОРОД, 2006



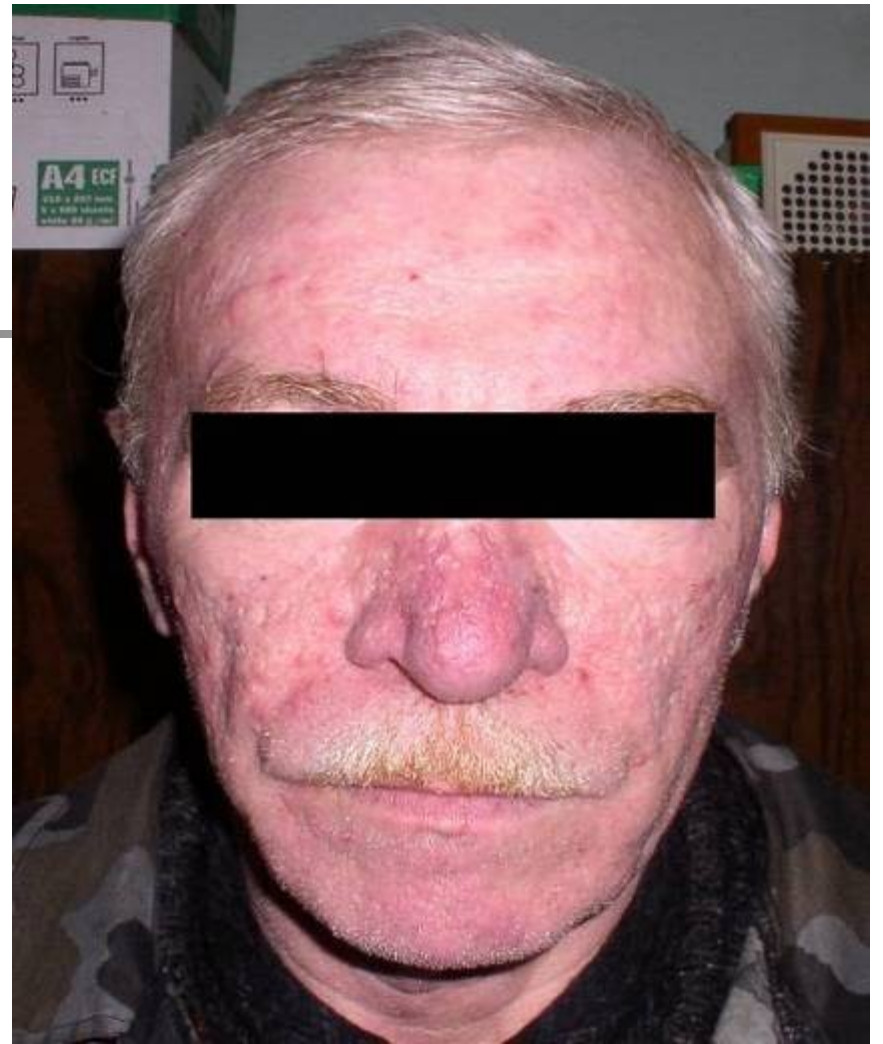
Group characteristic

- Base of this work is ozone therapy (local face injections) of 81 rosacea patients. 19 of them suffered from erythematoteleangiectatic rosacea (R), 53 – from papule-pustule variant, 1 – lupoid R, 5 –conglobatae R, 3 – steroid R. 5 patients had ophthalmorosacea, 6 suffered from rinophyma. In 8 % Demodex folliculorum was found. This group concluded 72 females and 9 males. Age of patients varied from 23 to 63 years ($43,2 \pm 7,9$ in average). Middle duration of disease was 4 years (from 2 months to 30 years).



Efficacy of treatment

Result of treatment (%)	Disappearance of clinical picture	Significant improvement	Improvement
Group of patient has been treated with ozone therapy	42	58	0
Comparison group	12,5	62,5	25











Laboratory control methods

- Diene conjugates in plasma and erythrocytes
(*A. Орехович method*)
- Malonic dialdehyde
(*В.Б. Гаврилов method*)
- AOA in plasma
(*Biochemiluminescence – analysis*)
- Determination of protein peroxidation in serum
(*Е.Е. Дубинина and all. Method*)



Results of laboratory investigations

- Initial values of diene conjugates in plasma and erythrocytes insignificantly exceeded the control group values, in the course of ozone therapy it did not come to intensification in the production of initial products of lipid peroxidation. The values of malonic dialdehyde in plasma before the treatment were credibly lower than the control values, under influence of ozone therapy its level increased twice. The level of MDA in erythrocytes that was initially higher than the control one decreased in the course of ozone therapy, but did not reach the control group values. During ozone therapy antioxidant plasma activity increased. All seven parameters of protein peroxidation demonstrated absence of intensification.

Выводы



- CONCLUSIONS
- New effective nonmedicamentous method of rosacea treatment has been developed
- Ozone therapy in local treatment of loci has systemic influence on prooxydative system data and needs in scrupulous control



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Пособие для врачей

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