

# Immunomodulators a Vegetative and Animal Origin at Treatment of the Infections Caused *Staphylococcus aureus*

Dmitrieva Elena Germanovna\*

Town Ivanovo, Russia

\*Corresponding author: Dmitrieva Elena Germanovna, Clinical Pharmacist, Sacco's street, Town Ivanovo, Russia, Tel: 8493230398; E-mail: CyriX2003@mail.ru

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## Introduction

Persistirovation infections golden *Staphylococcus aureus* if it not to treat it is dangerous to adults and children, especially in pregnancy (for mother and a fruit), newborns and children of early age).

Most often the infection activator is *Staphylococcus aureus*, including steady to Metycyllin and to other antibiotics. At a secondary immunodeficiency the staphylococcal infection can meet in symbiosis streptococci (*Streptococcus agalacticae*). The infection Meticyllin-resistant *Staphylococcus aureus* (MRSA) extends more and more, and experts believe, that disease can be transferred from animals to people [1]. Owners of the pets, who are ill with an infection *Staphylococcus aureus*, are exposed to high risk of infection with this infection. During a sting an animal *Staphylococcus aureus* can easily get into a human body. Annually approximately 60% of stings animals fall to dogs and 10-20% - on cats. Infection consequences *Staphylococcus aureus* can be the most various - from an abscess on a skin to pneumonia, a sepsis, meningitis, an intestinal infection, an aggravation *Mucoviscidos*. Thus *Staphylococcus aureus* carries conditional-pathogenic microorganisms, capable to cause disease, but only under certain circumstances. Various damages of a skin (a trauma, a splinter, a friction about clothes, infringement of rules of hygiene) - the precondition to local purulent infections; decrease in immunity owing to other illnesses, food infringement, stresses, hypovitaminoses - preconditions to the general infections; infringement of rules of preparation and storage of a foodstuff - lead to food poisonings. Intra hospital (hospital) infections when the activator which has survived in the conditions of constant application of disinfectants and mass use of antibiotics, becomes polyresistant are especially dangerous.

Search of effective schemes of treatment at *Staphylococcus aureus* is still actual. The big interest is represented by the preparations of a natural origin possessing antibacterial action. Among them our attention was involved with following preparations (Table 1).

The microorganism name	Number stamms	Action mkg/ml
<i>Staphylococcus aureus</i> spp. (Including, steady against antibiotics)	12	1,95-7,8
<i>Staphylococcus albus</i>	2	1,95
<i>Streptococcus haemolyticus</i>	1	125
<i>Streptococcus pyogenes</i>	2	31,2-62,5
<i>Streptococcus faecalis</i>	1	62,5
<i>Bacillus subtilis</i>	1	3,9
<i>Mycobacterium tuberculosis</i>	1	31,2

<i>Escherichia coli</i>	1	7,8
<i>Salmonella paratyphy B</i>	1	125
<i>Salmonella typhy abdominalis</i>	1	62,5
<i>Shyggella dysenteria flexnery</i>	1	31,2
<i>Proteus vulgaris</i>	1	250
<i>Pseudomonas aeruginosa</i>	1	250
<i>Klebsiella pneumoniae</i>	1	62,5
<i>Bacillus anthracoides</i>	1	1,95-3,9
<i>Entamoeba histolytica</i>	1	1,95-7,8
<i>Trichomonas vaginalis</i>	1	1,95-3,9
<i>Candida albicans</i>	6	15,6-31,2
<i>Candida tropicalis</i>	2	31,2
<i>Candida pseudotropicalis</i>	2	3,9-15,6
<i>Candida krusei</i>	3	7,8-31,2
<i>Candida parakrusei</i>	2	15,6-62,5
<i>Candida guilliermondii</i>	2	31,2
<i>Achorion schonleinii</i>	1	31,2
<i>Epidermophyton inguinale</i>	1	125
<i>Microsporium canis</i>	4	15,6-31,2
<i>Microsporium ferrugineum</i>	1	7,8
<i>Microsporium gypseum</i>	2	31,2-62,5
<i>Trichophyton crateriforme</i>	1	31,2
<i>Trichophyton mentagrophytes granulosum</i>	3	12,5-62,5
<i>Trichophyton mentagrophytes interdigitale</i>	3	31,2
<i>Trichophyton rubrum</i>	1	25
<i>Trichophyton violaceum</i>	1	31,2
<i>Trichophyton faviforme</i>	1	15,6-31,2
<i>Cryptococcus</i>	2	12,5-100
<i>Nocardia</i>	1	12,5
<i>Hormodendrum</i>	2	12,5

Aspergillus	2	25-100
Penicillium	2	50-100
Sporotrichum	1	100
Cephalosporium	1	100
Monosporium	1	50
Mucor	1	50
Actinomicetes	2	6,25-25

**Table 1:** Antibacterial action of Sangviritrin.

## Antibacterial action of Sangviritrin

### The characteristic of preparations

1. Derinat - on a basis Milt fishes, immunomodulator an animal origin, a preparation for in/muscular introduction.
2. Sangviritrin - represents a mix of bisulphates benzofenantridinov alkaloids Sangvinarin's and Choleritrin's, suppressing bacterial nuclease. The preparation Sangviritrin possesses Immunomodulation action, increasing authentically the general T-lymphocytes, T-helper, reducing the Central Electoral Committee (circulating Immune complexes). Sangviritrin it is capable to make Immunogramms practically ideal, authentically reduces caption Ig M, G, E ( $p < 0.01$ ). Collateral reactions are shown seldom - from tablets in the form of a diarrhoea, pains in a stomach, a nausea and vomitings. By-effects decrease at reception Sangviritrin after meal, simultaneously with sugar or a syrup (a crimson syrup) - 0.1% ( $p < 0.01$ ). Allergic reactions - at 0.01% ( $p < 0.05$ ) can be shown. In a place of drawing Sangviritrin - morbidity, an itch, burning and Hyperaemia skin - Solution for external application - 0.05 % ( $p < 0.01$ ).
3. Suprax - Cephalosporin an antibiotic of III generation for oral application. Operates bactericide (breaks synthesis of a cellular wall of microorganisms). It was appointed to 4 patients at repeated infection *Staphylococcus aureus* to level diarrhoea display on reception Syprax, therefore for elimination diablos - the preparation - Sangviritrin in tablets - 1 tablet in day for adults, 1 of a tablet for children of 8 years was appointed. Thereby it is fulfilled positive combination application of two preparations [2,3].
4. Sangviritrin - Solution 1% - cultivation in 40 times for adults, for children in 80 times - rinsing's of a pharynx, vagina syringing, and a sine-catheterization. At cultivation of 0, 2% of a solution Sangviritrin's in 40 times concentration 0, 005% turns out.
5. Azitrox - 3 tablets for 3 days - it was appointed at combination pathologies - Sangviritrin+Azitrox (Azitromycin) =a rational

combination at combination pathologies - *Staphylococcus aureus* + *Streptococcus agalacticae*. Thereby it is approved positive combination application of two preparations.

### Research objective

Working out of new effective standards of treatment at *Staphylococcus aureus*.

### Material and Method

Under supervision there were 42 patients with the diagnosis the kind (a secondary immunodeficiency), *Staphylococcus aureus*.

Children have been included In 1 group from 8 till 15 years with clinical *Staphylococcus aureus* - 10 persons. In the second group - were adults from 18 till 57 years - 12 persons (it is equivalent men and women) are taken. 2 more groups of children (10 persons) and Adults (10 persons) were control; they treated the standard methods (Therapy antibiotics of a wide spectrum of action). It was appointed in control group - Ampicillin (Phlemoxin) 250 mg 4 times a day, to children on 125 mg 2 times a day, appointed for 30 minutes to meal - 14 days, Lincomycin - on 0.5, 2 times day the adult, on 0, 25 to children appointed in 2 hours after meal - 14 days [4,5].

### Research methods

1. The bacteriological analysis in microbiological laboratory of the centre of hygiene.
2. Immunogramms 2 levels of complexity.
3. The clinical analysis of blood developed.

**The characteristic of patients:** In parallel were 5 persons with accompanying diagnoses in a kind carriage a pathogenic streptococcus are taken. The laparoscopy on a belly cavity has been executed to 2 patients against *St.aureus* with cutting off of the inflamed fabrics. Derinat pricked to the patients who are in a grave condition, in a dose of 5 ml in/muscul in 1 day in monotherapy (a course of 5 injections). Tablets Sangvirinrin's were appointed at moderate severity level infections. To children on 1 tablet 2 times a day and the adult on 4 tablets - 14 days - are strict after meal in 40 minutes. It was in parallel appointed pharynx and nose rinsings and syringing solution Sangvirinrin's (cultivation in 40 times) if *St.aureus* has been found out in them in mucous a mouth and at young women in a vagina. Research groups all have been completely cured (bacteriological analyses with the control Immunogramms in dynamics). Research went with 2007 for 2010. Processing went the statistic-correlation method which has proved, that factor of reliability of sample more low  $p < 0.01$ . At the control after course of treatment infections it was not observed (3 control crops have been made in microbiological laboratory on each patient) (Table 2).

Severity level of a condition of the patient	Temperature	Concentration of the sowed activator	Quantity of patients with mono – an infection	Quantity of patients with a milk-infection +agalacticae
The heavy	Febrile >38°C	10 in 5-6 degree	2	5
Average weight	Sub febrile >37°C	10 in 3-4 degree	8	5
Easy degree	Normal 36.6°C	Individual colonies	10	10

**Table 2:** Characteristic of patients - total of patients.

Diagnostics: Analyses on not specific flora were made in the hygiene Center, dabs with undertook mucous a nose, in a pharynx, in a vagina, in sputum. At carriage of *St.aureus* in concentration above 10 in 4 degrees and above - treatment demanded, at them clinical signs of an infection were observed: spasmodic, wavy temperature from Sub

febrile to febrile (above 38, 5). After course of treatment - in all dabs was not *St.aureus*. After a course Therapy Antibiotics - decrease in concentration *St.aureus* to concentration 10 in degree 3 (p<0.05) was observed only (Table 3).

Before treatment	After treatment by standard methods
Concentration <i>St.aureus</i> 10 <sup>4</sup> – 10 <sup>5</sup>	Concentration <i>St.aureus</i> 10 <sup>1</sup> – 10 <sup>3</sup>
p<0.01	

**Table 3:** Microbiological analyses of patients before treatment in the samples taken from dabs of a nose, a pharynx, Secret of bronchial tubes, vagina (Table 4).

Treatment Sangvirintrin's	After treatment by standard methods
Pure crops	Concentration <i>St.aureus</i> 10 <sup>1</sup> – 10 <sup>3</sup>
p<0.01	

**Table 4:** Microbiological analyses of patients after treatment in the samples taken from dabs of a nose, a pharynx, Secret of bronchial tubes, vaginas.

lymphocytes). Immunogramms did in dynamics of supervision - in independent laboratory *In vitro* of Ivanovo (p<0.05). By results Immunogramms, at application of standard therapy of essential changes in Immunogramms patients have not occurred. Results of researches testify, that application of intestinally-soluble tablets Sangvirintrin's unlike Therapy Antibiotics leads to normalisation Immunological indicators. Diagnostics of reactions of stress on Leukocytar to the formula (clinical analyses of blood of patients) (Table 5).

On the basis of the above-stated results the diagnosis is established a secondary immunodeficiency on V-lymphocytes - (the kind on V-

Uniform elements of blood	Quiet activation	The raised activation
Limfocyts	28%	45%
Leukocyts	4000	6000
segment nuclear Leukocyts	The bottom half of norm 44	Below norm 34
Other elements of blood	norm	norm
p<0,01		

**Table 5:** Dependence of uniform elements of blood on a condition of reactions of activation at development of clinical signs of disease.

As at any somatic disease there are changes in mentality, I spend stress diagnostics on Leukocytar to the blood count. The received results of inspection before treatment testify that after treatment in group of patients, treatmeted under new schemes after the spent course treatment Sangvirintrin's (tablets in a dose 0,005 r N 30) an

infectious inflammation is absent, the organism of the patient from a pathological phase of stressful reaction settles into shape. At treatment by standard schemes in Leukocyte to the formula there were pathological changes in the blood, specifying in an inflammation (Leukocytes) (Table 6).

Blood indicators	Before treatment	After treatment
Lymphocytes	28-33%	18-20
Leukocytes	7-9 × 10 <sup>9</sup>	5 × 10 <sup>9</sup>

Segment nuclear Leukocytes	62	54
Other elements of blood	–	norm

**Table 6:** Blood Indicators on Leukocyte to the formula.

Analyses speak about stressful reaction of an organism and about presence of an infectious inflammation which after course treatment Sangviritrin's in tablets in a dose 0,005 r N 30, clean an infectious inflammation, the human body from a pathological phase of stressful reaction settles into shape. [6,7].

## Discussion

The presented results of clinical supervision testify to efficiency combination applications of pharmacological means and herbal medicine. Sangviritrin in the medicinal form – tablets with Intestines soluble a covering 0,005 r, it is effective at easy and average forms of weight *St.aureus* in 98% of cases. A dispensing mode: on 2-4 tablets a day. To children from 1 year - on 1 tablet in day (it is strict after meal). Sangviritrin, in the medicinal form the solution for external and local application of 0, 2%, is effective at washing of various cavities and mucous membranes. A mode of dispensing for adults - cultivation in 40 times on 50 ml, washings - 2-4 times a day, for washing of bosoms of a nose and a vagina - cultivation the same (doses for adults). For children-cultivation in 80 times-on 2 ml from a dozator-syringe. Application Sangviritrin's leads practically ideal Immunogramm, authentically reducing caption Ig M, G, E ( $p<0.01$ ). Advantages Sangviritrin's are the wide spectrum of its antimicrobial action, presence Immunomodular actions, application possibility, both in monotherapy, and in a combination to antibiotics. Application Derinat's (intramuscularly on 5 ml in day the adult, on 0, 2 ml - to children of 5 years) at heavy forms *St.aureus* was effective in 98% of cases. Considering, that pricks very painful, children can appoint Sangviritrin in tablets.

Antibiotics are insufficiently effective for treatment *St.aureus*. They only detain growth *S.aureus*, possessing only Bacteriostatic action. All patients in research transferred treatment well. At application of tablets Sangviritrin's at a number of patients the small heartburn, pains in a stomach, not demanding cancellations of a preparation was observed. Intramuscular introduction Derinat's was accompanied by a considerable pain. At the control patients receiving Therapy Antibiotics, by-effects corresponded described in instructions on application of preparations - Amoxicyllin, Linkomycin (allergic reactions of different degree of expressiveness)

**Results of treatment:** Results of clinical supervision from 2007 for 2010 are presented. Offered new effective standards of treatment.

1. Derinat (a solution for intramuscular introduction of 15 mg/ml) - Immunomodulation means, represents sodium Deoxiribonucleinat, received of moloks salmon fishes. Immunomodulation the effect Derinat's is caused by stimulation V-lymphocytes, activation T-helpers. Application Derinat's in complex therapy allows to raise efficiency and to reduce duration of treatment, at considerable reduction of doses of antibiotics [8]. The single daily dose for children till two years makes 0,5 ml; from 2 till 10 years-1-4 ml (under the scheme: a preparation half-milliliter for every year life); for children is more senior 10 years - 5 ml [7].

2. Sangviritrin's tablets with Intestines soluble a covering 0,005 r for application inside.
3. Sangviritrin's an aqueous-alcoholic solution of 0, 2% - local (for adults - cultivation in 40 times, for children - in 80 times) - rinsings of a pharynx, vagina syringing, a sine-catheterization. At cultivation of 0, 2% of a solution Sangviritrin's in 40 times concentration 0, 005% turns out. Sangviritrin's - antimicrobial means, received of a grass *Mecleaya heart-shaped* - *Macleaya cordata* (Willd.) R.Br. and *Macleaya microcarpa* (Maxim.) Fedde families *Makovye* -*Papaveraceae*. Sangviritrin suppresses growth and development of a wide spectrum of microorganisms, including clinical schtamms, possessing high degree medicinal resistance, including: bacteria of sort *Staphylococcus*, *Streptococcus*, *Proteus*, *Pseudomonas*, *Salmonella*, *Pyocioneus*, *Shigella*, *Escherichia*, *Enterobacter*, *Acinetobacter*, *Serratia*, the pathogenic elementary sort *Trichomonas* and *Entamoeba*, and also pathogenic mushrooms of sort *Candida*, *Trichophyton*, *Microsporum* and of some others, including activators of deep mycoses (*Nocardia*, *Cryptococcus*, *Actinomyces*) (Table 1). Long passages of microorganisms at presence Medicinal resistance, including: bacteria of sort *Staphylococcus*, *Streptococcus*, *Proteus*, *Pseudomonas*, *Salmonella*, *Pyocioneus*, *Shigella*, *Escherichia*, *Enterobacter*, *Acinetobacter*, *Serratia*, the pathogenic elementary sort *Trichomonas* and *Entamoeba*, and also pathogenic mushrooms of sort *Candida*, *Trichophyton*, *Microsporum* and of some others, including activators of deep mycoses (*Nocardia*, *Cryptococcus*, *Actinomyces*) (Table 1). Long passages of microorganisms at presence Sangviritrin's do not lead to development of medicinal stability to a preparation.
4. At the heart of the mechanism of antimicrobial action Sangviritrin's suppression bacterial nucleaza, infringement of processes of permeability of cellular walls, partitions of division, a structure nucleoid's [3-5] lays. The preparation Sangviritrin's possesses Immunomodulator action, increasing authentically the general T-limfocysts, T-helpers, reducing the Central Electoral Committee (circulating immune complexes).
5. Suprax - the daily dose makes 400 mg (1 time/days or on 200 mg 2 times/days).
6. Salads from fresh white head of cabbage - to use a diet for the period of treatment, to eat salads before meal.
7. Azitrox - 3 tablets for 3 days!

## Conclusion

### Recommended rational schemes of treatment

1. Sangviritrin, in the medicinal form of a tablet with Intestines soluble a covering, 0,005 r (1 tablet - 5 mg), it is effective at easy and average forms of *St.aureus*. A dispensing mode: 5 mg (1 tablet) on 4 tablets a day - till 14 days. To children from 1 year - on 1 tablet in day (it is strict after meal).
2. Derinat - ampoules on 5 ml in a day the adult, on 0, 2 ml - to children of 5 years. But children can appoint Sangviritrin in tablets, since pricks very painful. It is effective at heavy forms

*St.aureus* - Derinat intramuscular. Efficiency of treatment is available - 98 %.

3. Sangviritrin, in the medicinal form the solution for external and local application of 0, 2%, is effective at washing of various cavities and mucous membranes. A mode of dispensing for adults - cultivation in 40 times on 50 ml, washings - 2-4 times a day, for washing of bosoms of a nose and a vagina - cultivation too (doses for adults). For children - cultivation in 80 times - on 2 ml from a dozator-syringe.

**Advantages Sangviritrin's:** its application, as natural antibiotic, both in monotherapy, and in a combination to other specified preparations, as Immunomodulator a phyto-genesis. Long passages of microorganisms at presence Sangviritrin's do not lead to development of medicinal stability to a preparation.

**Antibiotics are insufficiently effective:** At a combination of pharmacological means and herbal medicine - collateral action of pharmacotherapy is levelled.

**Recommended rational schemes of treatment:** Sangviritrin +Suprax=the rational combination, allowing to level collateral action of an antibiotic (diarrhoeia). Sangviritrin+Azitrox (Azitromycin) =a rational combination at combination pathologies - carrier state *Staphylococcus aureus*+*Streptococcus agalacticae*.

**Efficiency of such treatment makes - to 98%:** At treatment of an infection *St.aureus* it is recommended to supervise Immunological

parameters in dynamics and to do Immunogramms 2 levels of complexity (all parameters, except system Complement's).

## References

1. Mark Enright (2009) Infection Control 2009, Microbiological perspective. London.
2. Pogorelskaja LV, Vichkanova SA, Bunov SV (2000) Sangviritrin - as an alternative preparation for treatment of sharp intestinal infections. Elista 175-176.
3. Vichkanova SA, Kolhir VK, Sokolskaja TA, Voskoboynikova IV (2009) Sangviritrin's Bulls Medical products from plants 246-261.
4. Vichkanova SA, Kolhir VK, Krutikov, Adgina VV, Fateyev, Sokolsky TA (2000) Sangviritrin the representative of new generation of preparations of antimicrobial action 70th anniversary VILAR 300-309.
5. Vichkanova SA, Krutikova NM (2012) Clinical application Sangviritrin at a dysbacteriosis 3: 64-68.
6. Vichkanova SA, Krutikova NM (2012) Clinical application Sangviritrin at Dysbacteriosis at children. Pediatrics 5:101-107.
7. Kuselmana AI (2008) Application Derinat's in pediatrics: the Grant for practising doctors Triad 88.
8. <http://www.emergogroup.com/resources/articles/white-paper-russia-device-registration>