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CHARACTERIZATION OF THE SENSITIVITY OF MICROBES TO CERTAIN DRUGS IN VITRO!

Rakhimov Z.K., Pulatova Sh.K.

Bukhara State Medical Institute.

✓ ***Resume***

In recent years, the problem of traumatism of the maxillofacial region continues to be one of the topical topics of surgical dentistry, since it affects the able-bodied age groups of the population. At the same time, primary injuries of the mandible do not reduce the damage of the mandible with infection. The number of inflammatory complications does not decrease, reaching more than 40% of cases.

Key words: fractures of the lower jaw, post-traumatic complications, infections in the bone tissue, violation of tissue trophism, immobilization of bone fragments.

ХАРАКТЕРИСТИКА ЧУВСТВИТЕЛЬНОСТИ МИКРОБОВ К НЕКОТОРЫМ ЛЕКАРСТВЕННЫМ ПРЕПАРАТАМ В УСЛОВИЯХ IN VITRO!

Рахимов З.К. Пулатова Ш.К.

Бухарский Государственный медицинский институт.

✓ ***Резюме***

В последние годы проблема травматизма челюстно-лицевой области продолжает оставаться одной из актуальных тем хирургической стоматологии, поскольку затрагивает трудоспособные возрастные группы населения. При этом, количество открытых, а значит, первичное инфицированных переломов нижней челюсти не снижается. Не становится меньше и количество воспалительных осложнений, достигающих более 40% случаев.

Ключевые слова: переломы нижней челюсти, посттравматических осложнений, инфицирования в костной ткани, нарушение трофики ткани, иммобилизации костнқх отломков.

IN VITRO! ШАРОИТИДА МИКРОБЛАРНИНГ АЙРИМ ДОРИВОСИТАЛАРИГА СЕЗГИРЛИГИНИ ТАФСИФЛАШ

Рахимов З.К., Пулатова Ш.К.

Бухоро давлат тиббиёт институти

✓ ***Резюме***

Сўнги йилларда юз-жағ жароҳатлари муаммоси жарроҳлик стоматологиясининг долбзарб муаммоларидан бири бўлиб қолмоқда, чунки бу аҳолининг меҳнат лаёқатига таъсир кўрсатади. Шу билан бирга, пастки жағнинг бирламчи очиқ жароҳатлари, пастки жағнинг инфекция билан зарарланишини камайтирмайди. Бунда яллиғланиш жараёнининг асоратлари сон жиҳатдан миқдори камаймасдан 40%дан кўпайганини ташкил этади.

Калит сўзлар: пастки жағнинг синиши, посттравматик асоратлар, суяк тўқимасини инфекция билан зарарланиши, суяк бўлакларини иммобилизацияси.

Relevance

Since the second half of the 20th century, in economically developed countries of the world, there has been a steady increase in the incidence of pathology caused by opportunistic bacteria and fungi. These microbes, often found in the body of healthy people or in environmental objects (soil, water, plants), usually caused the infectious process in immunocompromised individuals, with massive infection or a change in the main epidemiological localization in the body of a susceptible host [Smirnov I.V., 2000; Bilev A.E. et al., 2007]. It is known that any trauma is a stress factor for the body. With a fracture of the mandible, the outcome of treatment and the likelihood of complications directly depend on the microcirculation of the maxillofacial region (Lepilik A.V. et al, 2005; Eropina N. L et al, 2012; Bergalion A. N. Et al, 1996)

In this regard, at the moment, the urgent task is to create new and more effective methods, as well as to study the effectiveness of already existing methods. The results obtained are necessary to use the development of a protocol for treating patients with this type of injury, depending on the specific clinical situation.

It is known that the majority of health care clinicians show great interest in determining the sensitivity of microbes to antibiotics, that is, antibiogram. Apparently, this is not accidental, since a qualified clinician is fully aware that an antibiogram allows the doctor to prescribe the most effective drugs. Among these methods, in most cases, the disc diffusion method is preferred, since this method is the most convenient, simple to execute, economical and accurate in results.

To establish this research method, we have prepared cultures of microbes, which are often found in the oral cavity in a viable state for 18 hours. On the surface of the dried nutrient medium by Mueller Hinton, 1-2 ml of the studied microbes (standard 1.0 ± 10 ') were applied, evenly distributed by rocking the dish (sowing with "Lawn"), the excess was removed into a disinfectant solution.

In parallel with this, a solution of drugs was prepared in separate vials to be tested taking into account the therapeutic dose.

After the inoculation was completed, the Petri dishes were dried at room temperature for 10-15 minutes. Then they took with tweezers sterile paper disks (like antibiotic ones) prepared from filtered paper, soaked them in drug solutions and placed them on the surface of the culture medium with inoculations of microbes. The dishes were closed and placed in a thermostat at 37 ° C and incubated for 18-24 hours.

At the end of the incubation period, the dishes were removed from the thermostat. To take into account the results obtained, the dishes were placed on a dark surface, and the diameter of the zones of inhibition of microbial growth around the discs, including the diameter of the discs themselves, was measured with an accuracy of 1 mm.

The antibacterial activity of medicinal preparations was assessed by the size (in mm) of the growth retardation zone of the tested microbes (Fig. 1). The materials of the results obtained on the antibacterial activity of the preparations are presented in table No. 1.

At the Bukhara State Medical Institute, at the Department of Surgical Dentistry, for the treatment and prevention of inflammatory complications in patients with fractures of the mandible, a whole range of therapeutic and prophylactic drugs is used, which include:

1. Furacilin-antiseptic 5. Serrata - enzyme
2. Chlorhexidine - antiseptic 6. Azithromycin - antibiotic
3. Bifidobacterin - eubiotic 7. Florbiolact - eubiotic.
4. Sextaphage - phage

Characteristics of the sensitivity of microbes to drugs in vitro! Table № 1 (M±m) мм.

№	Groups microbes	Furacilin	Chlorhexidine	Bifidobacteria
1	**Str. salivarius**	20,0 ± 0,3	15,0 ± 0,2	15,0 ± 0,1
2	**Str. mutans**	21,0 ± 0,3	16,0 ± 0,2	15,0 ± 0,2
3	**Str. mitis**	18,0 ± 0,2	18,0 ± 0,2	18,0 ± 0,2
4	**Staph. aureus**	19,0 ± 0,2	19,0 ± 0,3	13,0 ± 0,1
5	**St. epidermidis**	20,0 ± 0,3	13,0 ± 0,2	19,0 ± 0,3
6	**St.saprophiticus**	20,0 ± 0,2	16,0 ± 0,2	14,0 ± 0,2
7	**Esch. coli ЛШ**	12,0 ± 0,1	16,0 ± 0,2	20,0 ± 0,4
8	**Esch. coli ЛИН**	11,0 ± 0,1	15,0 ± 0,1	25,0 ± 0,4
9	**Prot. vulgaris**	15,0 ± 0,1	14,0 ± 0,1	15,0 ± 0,2
10	**Klebsiella**	21,0 ± 0,3	22,0 ± 0,3	21,0 ± 0,3
11	**Psevdomonas**	13,0 ± 0,1	14,0 ± 0,1	15,0 ± 0,2
12	**Candida albicans**	11,0 ± 0,1	13,0 ± 0,1	12,0 ± 0,1

Notes: units are in mm of microbial growth inhibition zone. (mm)

Microbial drug sensitivitywith special treatment in vitro!

Table № 2 (M±m)мм.

№	Groups microbes	Sextaphagus	Serrata	Azitromicin	Florbiolact
1	**Str. salivarius**	11,0 ± 0,1	0	16,0 ± 0,2	18,0 ± 0,2
2	**Str. mutans**	12,0 ± 0,1	0	15,0 ± 0,1	20,0 ± 0,3
3	**Str. mitis**	0	0	15,0 ± 0,2	19,0 ± 0,2
4	**Staph. aureus**	11,0 ± 0,1	13,0 ± 0,1	21,0 ± 0,3	21,0 ± 0,3
5	**St.epidermidis**	11,0 ± 0,1	11,0 ± 0,1	22,0 ± 0,3	20,0 ± 0,3
6	**St.saprophiticus**	16,0 ± 0,2	12,0 ± 0,1	14,0 ± 0,2	22,0 ± 0,3
7	**Esch. coli LH**	16,0 ± 0,2	12,0 ± 0,1	15,0 ± 0,2	25,0 ± 0,4
8	**Esch. coli LH**	13,0 ± 0,1	0	21,0 ± 0,3	26,0 ± 0,4
9	**Prot. vulgaris**	16,0 ± 0,2	11,0 ± 0,1	22,0 ± 0,3	15,0 ± 0,2
10	**Klebsiella**	16,0 ± 0,2	11,0 ± 0,1	16,0 ± 0,2	11,0 ± 0,1
11	**Psevdomonas**	13,0 ± 0,1	0	21,0 ± 0,3	12,0 ± 0,1
12	**Candida albicans**	15,0 ± 0,2	0	22,0 ± 0,3	0

Notes: units are in mm of microbial growth inhibition zone. (mm)

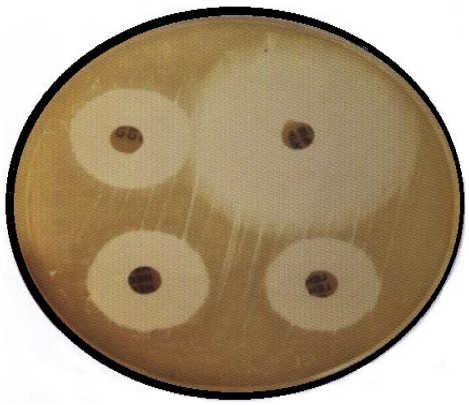

Fig **№.1** The sensitivity of microbes to drugs. Initially, we will give a microbiological assessment of these drugs in terms of providing antibacterial activity against 12 types of microbes that make up the main flora of the oral cavity; the obtained materials of these studies are shown in the table №1- №2.

Table №1 shows that one of the well-known antiseptics, which is widely used in practical medicine - furacilin, had its antibacterial effect on most of the microbes taken for research, especially on this gram-positive flora: streptococci, staphylococci. At the same time, they had a less pronounced effect on gram-negative flora, such as: Escherichia, Proteus and fungi of the genus Candida.

The antiseptic chlorhexidine also had an antibacterial effect on most of the tested microbes, although it should be noted that its effect, compared to that of furacilin, is much lower, both in relation to gram-positive and gram-negative forms. However, it should be noted that this antiseptic had the most reliable antibacterial effect on the group of the capsular microbe Klebsiella, which was 22.0 ± 0.3 mm.

It is quite obvious that in patients with fractures of the lower jaw, the process of treating the application of splint structures leads to the main violation, namely, to a violation of chewing food, since, although temporarily, the movement of the chewing muscles is limited. In addition, in the oral cavity due to the violation of hygiene, dysbiosis develops, the processes of local protection factors of the mucous membrane are disrupted, and this contributes to the intensification of the development of inflammatory processes in patients.

It is quite appropriate to note that these disorders in the oral cavity, along the chain go to the violation of the entire system of the gastrointestinal tract, that is, leads to a violation of both quantitative and qualitative ratios of microbes along the entire perimeter of the intestine, in which the process takes place, as a rule, reducing the number of positive flora such as bifidobacteria and lactobacilli. Against this background, there is an increase in the amount of conditionally pathogenic flora, that is, a picture of intestinal dysbiosis develops. It is these processes that prompted us to

use the eubiotic Bifidumbacterin for the treatment of these patients in order to reduce the picture of intestinal dysbiosis, which is undoubtedly formed in monitoring the development of the disease.

As can be seen from table №1, Bifidumbacterin had an antagonistic effect on the bulk of the microbes used. However, the most pronounced antagonistic effect he had on the gram of negative flora - Escherichia, in which it was equal to 25.0 ± 0.4 mm. It is known that phages are eaters of microbes, as a rule, have a high specific antibacterial effect. Apparently, this can be considered such a variety of actions of the sextaphage in our research (table №2). Although it should be noted that its effect is more reliable on gram-negative flora than on a positive gram. The drug Serrata is an enzyme mainly prescribed to improve the digestive process of the gastrointestinal tract, that is, to break down food substrates used by patients.

The antibiotic Azithromycin, which has a broad spectrum of antibacterial action, had (Table № 2) a significant effect on the tested microorganisms. Table 2 shows that it had a pronounced antibacterial effect on the cultures of staphylococci, Escherichia, Proteus, Pseudomonas and fungi of the genus Candida.

We have already noted that in patients with fractures of the lower jaw, due to impaired oral hygiene and a decrease in local protection factors in the mucous membrane, the formation and development of overgrowth syndrome, that is, dysbiosis, occurs. Florbiolact was developed by scientists to reduce the pattern of oral dysbiosis in patients

As can be seen from table №2, the eubiotic Florbiolact had a significant antagonistic effect on most of the studied from the group of both gram-positive and gram-negative microbes. At the same time, it had a weak effect on the following crops: Klebsiella and Pseudonos, and did not affect the culture of Candida mushrooms at all. Thus, on the basis of microbiological studies to study the effectiveness of the antibacterial effect of a whole complex of drugs on microbes that form the basis of the oral flora, it is possible to draw the following conclusions:

1. Most of the drugs used to treat patients with mandibular fractures have shown their high efficiency in terms of antibacterial activity.

2. And only the drug Serrata has no antibacterial activity, although its use is advisable to improve the digestion process in these patients.

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