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Abstracts

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Fig. 1

Type of hemorrhage	Number of patients	Intervention
Epidural hematoma	10	1 craniotomy 1 burr hole evacuation 7 control CT
Subdural hematoma	32	1 craniotomy 2 burr hole evacuation 1 operation 20 control CT
Traumatic subarachnoid hemorrhage	36	22 control CT
Contusion	7	6 control CT
Intracerebral hemorrhage	4	3 control CT
Combined	11	10 control CT
Skull fracture	10	3 control CT

NEW TECHNIQUES AND FUTURE DEVELOPMENT

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"The rationale for the use of bone allograft impregnated with an antibiotic"

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Introduction: To date, there is no ideal allograft that provides local antibiotic release. Along with this, existing fillers are expensive material, which complicates their application in practice. All this leads to the need to look for new ways to solve this problem.
Material and methods: Gentamicin was used as an antibacterial drug because of its wide spectrum of action and thermal stability. For the study, Staphylococcus aureus ATTC 1518 was used as a microbial strain. The antibiotic release from the studied materials was determined by equilibrium dialysis over the entire observation period. Gentamicin antibiotic concentration was determined by HPLC.
Results: An allograft impregnated with an antibiotic, prepared according to the Marburg system in the area of the subcortical part of the bone, suppresses the Staphylococcus aureus ATTC 1518 strain twice as much as Perossal. When comparing bone allografts impregnated in various ways, the longest release time showed a perforated allograft.A bone graft impregnated with an antibiotic by incubation showed a 9% longer release time compared to Perossal granules ($p < 0.05$).When in vitro incubation of the antibiotic gentamicin with the drug "Perossal", the dissociation rate is more than 97% in the first two days. When the antibiotic gentamicin with a bone allograft is incubated in vitro on the second day, dissociation into the extracellular space makes up more than 56% of the drug from the previously bound ($p < 0.05$), which also indicates a longer release time from the bone allograft.
Conclusions: In vitro, a bone allograft impregnated with an antibiotic is able to reversibly bind the antibiotic gentamicin and gradually release it over a period of 7 days. The use of a bone allograft impregnated with an antibiotic suppresses the growth zones of Staphylococcus aureus strains.
References: Rudenko A., Impregnation of the bone allograft: Comparison of heads coloring. European Journal of Trauma and Emergency Surgery 2019 (Suppl) P.70

Fig. 1



Fig. 2

