

Booster for all medication processes

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Objective: One of the problematic point of the medication its targeting. The systemically administered drugs are distributed in the whole body by the blood, irrespective its origin by i.v. infusion, orally taken or getting by muscular injection, rectal suppository, skin-addicted, inhalations etc. However the delivery and the in- situ effect of the given drug to the target is a crucial point of the treatment. This is also the main point of the personalization of the drug-administration in every medial actions and especially important in the oncology, where the toxicity is an effective danger. Objective of our presentation is to introduce the device, which is devoted to help in this line of the problems: the chemo-booster.

Method: The drug in all systemically administered cases delivered and distributed by the blood-stream. The task to increase the drug-concentration in a given volume is increasing the blood-flow in the targeted area. The higher temperature could activate the microcirculation of the capillaries (capillary filtration capillary pressure, etc), increasing the micro vascular perfusion, local tissue oxygen, nutrients, and phagocytes to the area being targeted. It could also regulate the cell cycle by changing calcium ion binding. Following actions also could be generated:

1. increased fibroblastic activity and capillary growth
2. increases the nutrition concentration in the volume
3. increases the metabolic activity in the volume (higher quantity of nutrition, oxygen and higher local temperature)
4. synergically increases the field-dependent effects, (optimizes the membrane excitation and helps activating the signal pathways, etc.)
5. increases the effects on the blood-structure in the volume
6. increases venous and lymphatic flow
7. changes in physical properties of tissues
8. increases tissue extensibility
9. possible changes in enzyme reactions
10. increases the heat- and field-stress reactions (mainly the developments of heat-shock-proteins, HSP)

Further actions are:

- Muscular relaxation
- Edema reduction
- Lymphedema reduction
- Treatment of venous stasis ulcers
- Assists in removal of cellular debris and toxins
- Alters diffusion rate across the cell membrane
- Increases intramuscular metabolism
- Superficial wound healing
- Analgesia – pain relief, pain-killing device
- Could help the analgesic drugs to be activated

Results: A small device had been developed to heat up the full volume under the electrode in full depth. It has no treating effect like oncothermia had (it has no cellular selection or focusing), it is a simple local heater in depth. The heating is generated by the Joule-loss in the body, and makes vasodilatation there. The vasodilated volume has higher blood perfusion which delivers more drug (and more oxygen) to the target, and relatively deprives it form the other areas of the body. This is a drug-boosting in a requested volume, but it does not make any more selection.

The temperature range is 37-39°C, which is optimal for boosting function. The booster works not only by the vasodilation but also could be combined by the pharmacokinetic parameters of the given drugs, activating the chemo-reactions and the reaction rates by the higher temperature in the targeted volume. Its application covers a wide range of diseases. For example it could be used for rheumatism, joint pain-management, arthritis, dermatology, muscle spasms, sport supports, gynecology, allergy, rhinitis, common cold, pediatric ear diseases, nerve healing, bone Healing (unsure of any published clinical studies that are proven), cosmetics (like adipose problems, cellulites, acnes, blisters, etc.), support of the general rehabilitation process. It has a little curative effect on wound healing as well.

Conclusion: The newest device from Oncotherm Company is not for oncology alone. This universal small device could be indispensable support for the actual treatments by various medications, and could be essential for the personalization processes.