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**„Georgia - 1, 2 and 3“ Generation system in order to control a process of differentiation of bone marrow stem cells of critical patients.**  
**(Critical Care Medicine, Tbilisi, Georgia)**

In clinics of critical care medicine there is a great attention attracted to faster regeneration-reparation processes of critical patients. This enables to make condition to recover vital functions of organism in optimal time.

**Key words:** “Georgia-1”, “Georgia-2” and “Georgia-3”, bone marrow, cells, critical patients.

**Intraduction:** If we consider that basis of all regeneration-reparation system is differentiation of stem cells effectively, in Georgian Institute of Critical Care medicine there has been created complex of mechanisms “Georgia-1”, “Georgia-2” and “Georgia-3” which ensure an optimal ongoing of this process. One of the possibilities to attach to these devices in order to refine them is giving multi-function abilities. Consequently, aim of the work is to produce multi-function devices which optimize regeneration-reparation processes.

**Materials and methods:** device “Georgia-1” and “Georgia-2” are foundation of this work. Device “Georgia-1” is a generator of rectangular electric impulses with regulating rate before 180 hertz and current intensity before 30ma. These impulses by means of placing electrodes can affect on one or some parts of a body. Device “Georgia-2” is represented as the device which distributes impulses. On the stimulated part of patient which by means of previously prepared line electrodes are placed (about 11 items). The device supplies the two neighbor electrodes with impulses then another two electrodes and so on. By means of these process wave of influence is created. The time of supply with impulses for each electrode is similar and is installed by an operator in advance. At the same time there can be stimulated five parts of a body. Between other factors, stimulating vital function processes, we turned our attention to mechanical effect, of massage. Electric stimulation and mechanical massage has been used separately and practically this happened on the same parts of a body. As the basis of this construction we took mechanical massager “body sculptor” it is separated from other similar devices as it’s easier, more simple and have better influence on patient’s body. Out of range rotation of a working body massager, we have established two semicircular silver-coated electrodes. On these electrodes from separated electric stimulator “Georgia-1” are supplied electric impulses of necessary amplitude and rate. For better contact of electrodes and skin it is advisable to lubricate it with electric-drive gel.

At the three pictures there is represented a construction of the device.



Pic.1



Pic.2



Pic.3

**Results and discussion:** choice of parameters of stimulating impulse is produced according to individual peculiarities. We used impulses with rate research until 180hertz. The current value is established by increasing from a minimum to a point where there are involuntary muscle contractions simultaneously with stimulating pulses. Part of a patient's body which undergoes mechanical massage and electric stimulation at the same time. Moving zones of massage brings to heading up of zones of electric stimulation. The simultaneous action of two factors leads not only to their simple addition, but the appearance of new, higher therapeutic effect. Tentative approbation was conducted with 15 critical patients and 4 healthy persons. Experiments showed that this mean in safe and effectiveness of this multi-functional device and possibility to use not only in clinics for treatment but for the cosmic medicine.

**Conclusion:** there has been created the multi-functional device "Georgia-3", which enables to produce regeneration-reparation processes by the way of simultaneous electric and mechanical effect in the same part of critical patient's body.

#### References:

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„Georgia - 1, 2 და 3“ თაობის აპარატების გამოყენება კრიტიკულ ავადმყოფთა ძვლის ტვინის ღეროვანი უჯრედების დიფერენცირების პროცესის სამართავად .  
(კრიტიკული მედიცინის ინსტიტუტი, თბილისი, საქართველო)

კრიტიკულ მდგომარეობათა ლიკვიდაციის დროს მნიშვნელოვანია რეგენერაციულ-რეპარაციული პროცესების გააქტიურება. ეს ხელს სუწყობს სასიცოცხლო ფუნქციების დროის ოპტიმალურ მონაკვეთში აღდგენას. რეგენერაციულ-რეპარაციული პროცესების მართვაში უმთავრესი კომპონენტი ღეროვანი უჯრედების დიფერენცირაციის პროცესის ადექვატური მიმდინარეობაა. საქართველოს კრიტიკული მედიცინის ინსტიტუტში შემუშავებულ იქნა აპარატთა მთელი თაობა "Georgia - 1, 2 და 3" სახით, რომლებიც უზრუნველყოფენ აღნიშნული პროცესების გააქტიურებას კრიტიკულ ავადმყოფებში.