The Georgia is the first to present experimental samples of device for progenitor precursor committing named as "Georgia-1"

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Brought in here are results of progenitor precursors committing for the prevention, treatment and reparation of critical states. In this regard here are provided results of processing bone marrow of critical patients by electrical power, epinephrine, nitroglycerine and plasma rays. The most optimal results have been achieved using electrical impulses. The first generation of corresponding device by the name of "Georgia-1" is designed and constructed. Use of this device is recommended for the Critical Care Medicine clinics.

Key words: experimental samples, progenitor precursor, committing.

Dear co-chair.

Dear respected members of symposium.

Dear Colleagues.

Actuality:

The discussion of the problem that is presented now has been started from the end of twentieth century. Moreover can be told, during past decades step by step revolutionary changes are gradually brewing in the medical area this changes will become more noticeable in 2015 and the pick will be reached at 2020.

Methods:

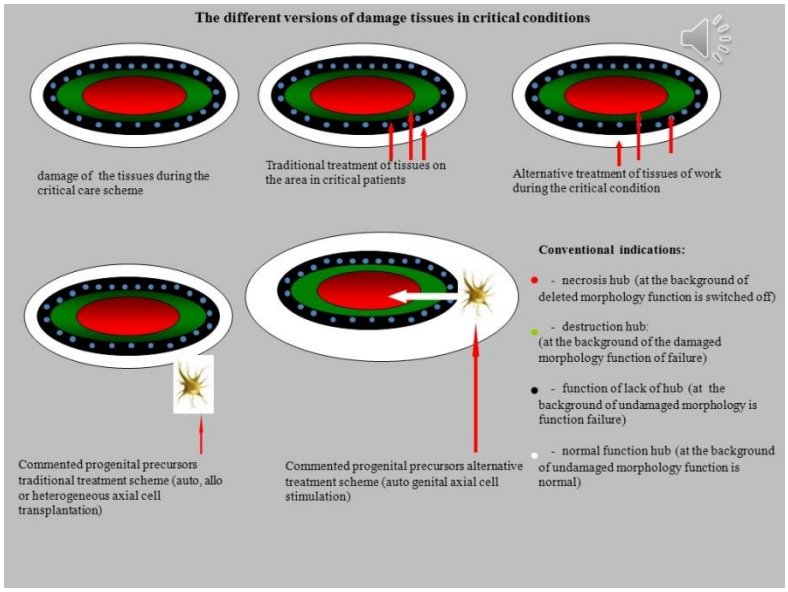
We have taken considerations on researches about using of bone marrow stem cells for treatment diseases. It is noteworthy that the researches on this area might be divided in to tow main directions.

First research direction conditionally can be named as "Progenitor precursor committing management outside of the body". This last one include the cases when stem cells are processed outside of the body or by using of them the tissues and organs are constructed and again rebounded in to the body for taking treatment effect.

In these cases stem cells are prepared from embryonic blood, form donor or itself form patient's bone marrow also from less differentiate cells and tissues like skin, epitel, cardiomyocytes and even from the dead body sells.

This way is most popularly spread and on this subject many scientific research institutes and clinical centers have gained remarkable success. For example see video record of the treatment method suggested by "Caring Medical & Rehabilitation Services" (USA 2006) on http://www.caringmedical.com/

Second research direction was created by Georgian Critical Care Medicine Institute and conditionally can be named as "Progenitor precursor committing management inside the body". In this case stem cells are not allocated from the body and the management of differentiation is processed inside the body itself. The background for this scientific direction has been made by those fundamental works that were made from nineties of the last century at Georgian Critical Care Medicine Institute on the bone marrow of the patients at critical condition by researching the bone marrow morphology and functionality. The results of these researches have shown that many treatment problems of critical patients have the outcome of no solution if the bone marrow would not be studied thoughtfully. The followers of this direction have appeared with its popularity. For example see video record of the treatment method suggested by "NeoStem.Inc" (USA 2010) on**:** http://www.neostem.com



It is noteworthy that in Georgian Critical Care Medicine Institute was discovered and passed throughrelated approbation such sources of management of stem cell committing like: treatment with plasma flow,treatment with electro impulses, treatment with infusion of epinephrine and nitroglycerine in to the bonemarrow. Adequate patents were gained to mention treatment methods (Zv.Kheladze at all.New usage ofelectro impulses generator". 2008.07.01 #4857," Zv.Khelade atall.

,,New usage of Plasma flow producer2008.06.26 #4825, Z.Kheladze, Zv.Kheladze ,,New usage of Nitroglycerin" 2008.07.11 # P4858).

Video footage will be presented about the usage of mention methods on**:** http://kheladze.ge/Tbilisi Third International_Symposium_(eng).html

Detail information about affectionate of these factorsis brought in other scientific work that was done onbase of Georgian Critical Care Medicine Institute. It is noteworthy that from this outlook the mostperspective method has to be treatment with electro impulses. This time we would like to present the resultsof count number changes of stem cell and immunocompetent cells after treatment of critical patients withelectro impulses.The research was made to the patients whose critical condition was associated with ischemic and hemorrhageinsult, heavy sepsis, post reanimation diseases, politrauma, cardiogenic shock, and heavy traumaof skull and brainwith other pathologies.Patients bone marrow and peripheral blood was studied for searching CD3, CD4, CD8, CD34, CD72 cell count andthere changes after treatment with electro impulses. The findings are brought in this slide. It is shown that aftertreatment with electro impulses has place progenitor precursor as well as immunocompetent T & B lymphocytesstatistical increase.

	Patient		**Peripheral blood**					**Bone marrow**				
			CD3	**CD4**	**CD8**	**CD34**	**CD72**	**CD3**	**CD4**	**CD8**	**CD34**	**CD72**
1	**Before treatment**	**X±m**	**34.1±0.3**	**22.5±0.3**	**15.1±0.2**	**0.1±0.03**	**8.5±0.1**	**14.4±0.2**	**8.9±0.2**	**6.4±0.1**	**0.2±0.03**	**5.6±0.2**
		n	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**
2	**After treatm**	**X±m**	**37.5±0.3**	**24.5±0.3**	**14.4±0.4**	**0.2±0.003**	**9.7±0.1**	**15.5±0.1**	**10.3±0.2**	**6.7±0.2**	**1.8±0.03**	**6.1±0.1**

	ent	n	19	19	19	19	19	19	19	19	19	19
		P	<0.001	<0.001	>0.05	<0.001	<0.001	<0.001	<0.001	>0.05	<0.001	<0.05

At that base of presented research results in Georgian Critical Care Medicine Institute was constructed suchexperimental devise named as “Georgia-1” and now you are able to see them.

The principal shame of this devise is presented now. Power supplies of this devise are electronic network supply as well as the automatic mode for operating with the Battery

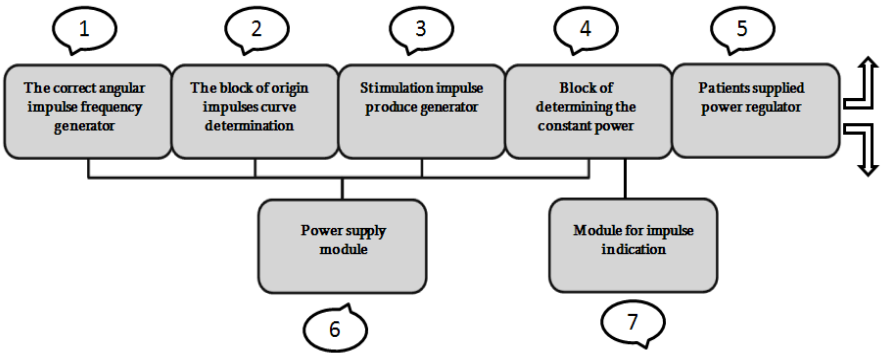
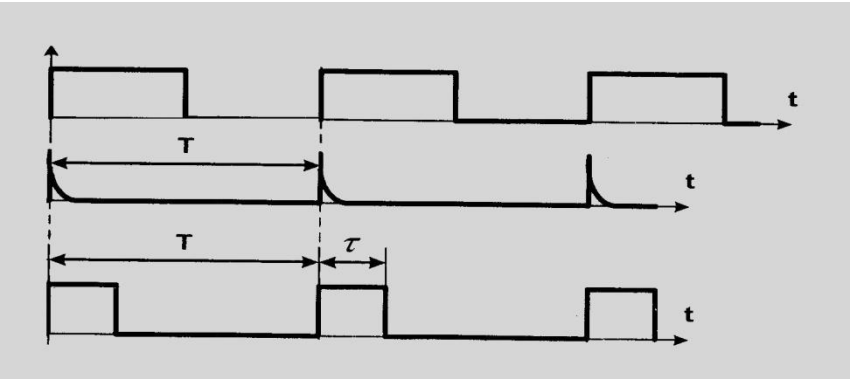


Fig 2: The block-scheme of electro impulses generator

Electronic impulses have straight-angular curve, maximum frequency of impulses per minute might be 14 * 10, and themaximum output of impulses might be 1 to 15 milliamper. The other variations are possible as well.

Timeline scheme of impulse generator working process



See video: http://kheladze.ge/Tbilisi_Third_International_Symposium_(eng).html

Conclusion:

Nowadays preparatory works are in research and we think that from 2015 will begin serial production of this devise besides this the Georgian Critical Care Medicine Institute is steel in researching this subject to discover more importance findings and we promise to relies them soon enough.

Thank you for your attention.

საქართველო პირველად წარადგენს პროგენიტული პრეკურსორების კომიტირების აპარატების საცდელ ნიმუშებს "Georgia-1"-ის სახელწოდებით.

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მოტანილია ორგანიზმის შიგნით პროგენიტური პრეკურსორების კომიტირების შედეგები კრიტიკულ მდგომარეობათა პრევენციის, მკურნალობისა და რეპარაციის მიზნით. ამ თვალსაზრისით მოწოდებულია ავადმყოფის ძვლის ტვინის დამუშავება ელექტროდენით, ეპინეფრინით, ნიტროგლიცერინით და პლაზმური სხივების მეშვეობით ყველაზე ოპტიმალური შედეგები მიღწეულია ელექტროიმპულსების გამოყენების დროს. კონსტრუირებულია და დამზადებულია შესაბამისი აპარატების პირველი თაობა "Georgia-1"–ის სახელწოდებით, რომელთა გამოყენება რეკომენდებულია კრიტიკული მედიცინის კლინიკებისათვის.

გასაღები სიტყვები: ექსპერიმენტული ნიმუშები, პროგენიტური პრეკურსორი, კომიტირება.