

## **Results of treatment of post-reanimation disease in Georgian Critical Care Medicine Clinic**

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80 patients with this disease were registered from 2005 year till September 2011 in Georgian Critical Care Medicine Institute. In 2005 there was 1 patient, in 2006 – 2 patients, 2007 – 3, 2008 – 7, 2009 - 36, 2010 – 22 and 2011-till today 9 patients. Lethality was 65%, number of rescued – 35% and number of bad-days 510. In the Critical Care Medicine Institute Clinic number of patients with postreanimation diseases increased. The majority had rhythm and conduction defect and acute myocardial infarction. It is also remarkable, that more in man than in women, lethality were very high and majority of patients died during first 48 hour. Disabilities had 6.7% from rescued and left 93.3% were discharged from the hospital with full recovery, if we do not consider before existing accompanying disease. Average length of bad delay was 6.3 bad-day and costs for one patient 2290\$.

**Key words: post-reanimation disease, sudden death, heart-lung reanimation.**

### **Actuality:**

In the USA 450 000 people die annually due to post critical care treatment and sudden death, their average age is 60 years. Risk of sudden heart stopping is 4-6 times high in the persons with myocardium infarct and upon II-III stages of heart failure (NYHA) – 6-9 times more. 60% of mortality is caused due to heart stoppage and quantity of survived ones is just 5-6%. According to data of Lincoln Critical Care Assistance Center (Lincoln EMS.Inc) there are registered about 136.2 patients with heart stoppage, most of them are men – 64% and women 36% and survived ones are only 14.4%. Mostly this is caused due to medicines, following trauma and other cases are caused by other reasons. Average age upon heart stoppage is 59.7 years and death age – 58.1 years. It is also interesting that recovery of circulation out of hospital was shown in 30,7%, in patients released from the hospital - 14.3%. According to the date of the Association of Cardiologists of America, in 2009 expenditures on cardiovascular diseases constituted 475.0 billion of USD. In 2006, program expenditures were of 32.7 billion

of USD. Expenditures for one released patient constituted 10 221 USD. Presently the frequency of post critical care diseases is sharply increased in critical care clinics; herewith indicators of lethality and disability are high. Attention must be paid to expensive treatment. On this background, post critical care disease is one of the main problems for critical medicine. Number of the patients with aforesaid pathology is increased in recent years in Critical Care Institute. It must be mentioned that post critical care diseases is characterized with high lethality.

**Material and methods:**

Multiple researches are published by the researchers of de-fibrillation general available program in relation with the issue; according to them, number of survived patients after heart stoppage out of clinic is increased by 7.5%-13.9%. And in hospital – by 22.4%-43.9%. From 25 survived patients, function of head brain was recovered in 88.0% (AHA). Presently in Georgia they apply heart-lung reanimation standard, adopted in 2006 as the result of joint working in reanimation conducted by the Association of Cardiologists of America and European Council. It is to be considered that this standard is internationally recognized in medicine and is based on trustful basis of medicine. Method of heart putting in motion, in case of fibrillation, is de-fibrillation, heart not direct massage; conformity of frequency of breast pressure and lungs artificial ventilation is of 30:2, when treated by 2 rescues, and 15:2 in case of one rescue. Lungs artificial ventilation is treated by mask of “AMBUS” type package. As soon as possible intubation and ventilation of intubated patient should be treated by “AMBUS” type package, 100% oxygenation, adrenaline injections directly in heart cavity, subclavian vein. Pulsation on carotid artery, color change of patient and narrowing of pupils of eyes, indicate affectivity of reanimation measures. Reanimation measures last within 40 minutes and are stopped for the reason of not affectively.

Starting from the year of 2005 till September 2011, 80 patients with this pathology have been registered in the Critical Care Institute. In 2005 there was 1 patient with this diagnosis, in 2006 – 2 patients, 2007 – 3, 2008 – 7 patients. And in 2009 – 36 patients, in 2010 – 22 patients and in 2011 up to present – 9 patients. Lethality constituted 65%, survivals – 35%, number of bed-days 510. This was included in main group and they were treated with therapy of progenitor

precursors (Table N1), and large number of such patients enables objective discussion. Information from different authors on results of reanimation was taken as control group, according to which 1806 patients were reanimated and 17.7% was survived and lethality constituted 82,3% (Table N2).

(Table N1)

| year  | Number of patients | Number of discharged | Mors | Bed-days | women mors | men mors |
|-------|--------------------|----------------------|------|----------|------------|----------|
| 2005  | 1                  | 0                    | 1    | 115      | 0          | 1        |
| 2006  | 2                  | 1                    | 1    | 9        | 1          | 1        |
| 2007  | 3                  | 1                    | 2    | 5        | 2          | 1        |
| 2008  | 7                  | 4                    | 3    | 27       | 4          | 3        |
| 2009  | 36                 | 10                   | 26   | 167      | 10         | 26       |
| 2010  | 22                 | 8                    | 14   | 128      | 6          | 16       |
| 2011  | 9                  | 4                    | 5    | 59       | 2          | 7        |
| total | 80                 | 28                   | 52   | 510      | 25         | 55       |

(Table N2).

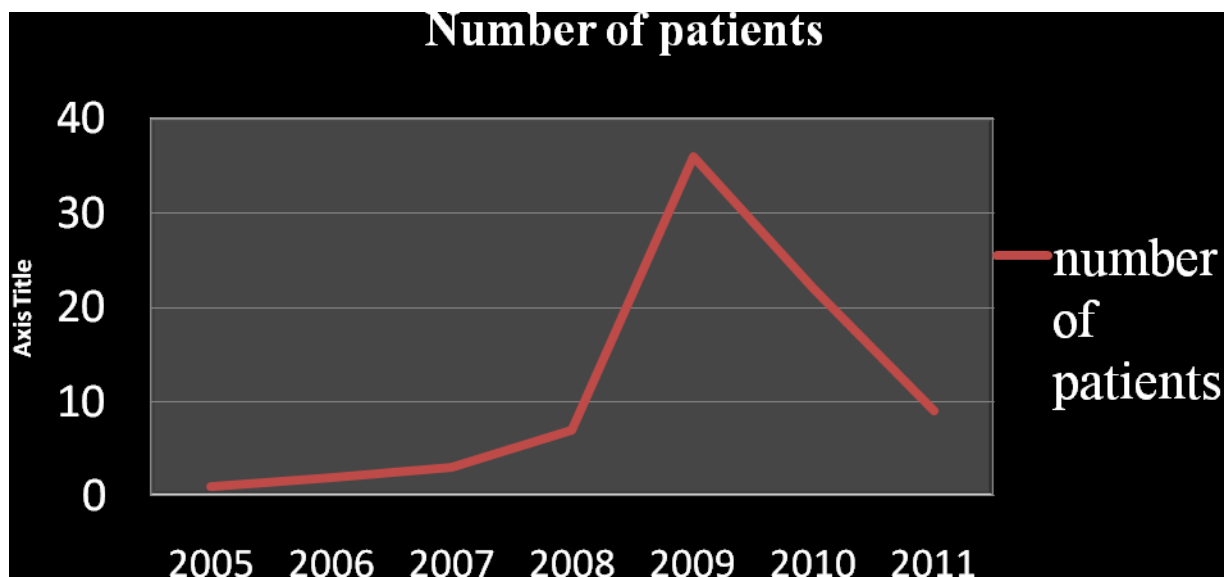
| The data                      | Number of reanimated patients | Recover of blood circulation | mortality | Number of associated life and survivors |
|-------------------------------|-------------------------------|------------------------------|-----------|---|
| AHA                           | 506                           | 58%                          | 90%       | 10%                                     |
| Multyprofile clinic of Norway | 1300                          | 56.0%                        | 79,4%     | 20,6%                                   |
| All                           | 1806                          |                              | 82,3%     | 17,7%                                   |

In all cases treatment tactics within post critical care treatment was standardized (Z. Kheladze 1996) and included lungs artificial ventilation, conducted in moderate hyper ventilation regime, considering indexes of gasses in arterial and vein blood and their correction. Frequently, infusion of vasopressors and cardio mimetic, correction of electrolyte balance, parenteral and enteral nutrition 3500 kkal per day and night, anti-bacteria treatment and other standard measures were required. As well therapy of progenitor precursors was treated from the very

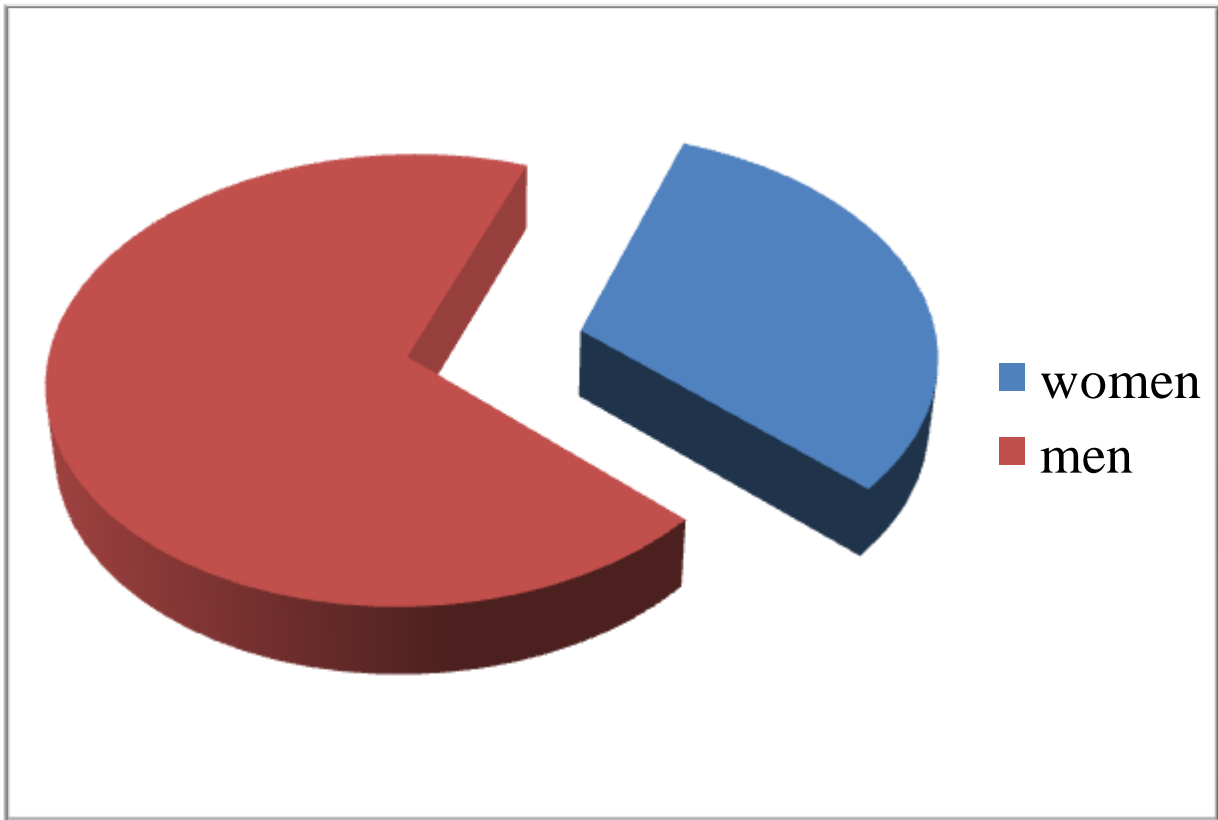
first hours according to respective patients. (Zv. Kheladze, Z. Kheladze, S. Jaiani, B. Tsutsikiridze, ID N10786/01. Application N AP2008010786. 2008.06.26. Zv. Kheladze, Z. Kheladze, R. Shonia, ID N10792/01. Application NAP2008010792. 2008.07.01. Zv. Kheladze, Z. Kheladze, ID N 10810/01. Application N AP2008010810. 2008.07.11). Accompanied disease of the patients mainly was shown as heart rhythm and passing failure, myocardium acute infarct – insult, Syndrome, aspiration with fresh water, heart cancer, lung artery thrombus emboli. Difficulties mainly were shown by bilateral bronchi pneumonia – almost in all cases, sepsis – 3 patients, kidneys acute failure – 2 patients, head brain swelling and hipoxsy encephalopathy – almost all the rest survived patients.

### Results and discussion:

According to the data of our clinic, it may be clearly seen that from 2005, number of patients with post critical care disease was increased gradually; sharp increase was shown in 2009, further, number of such patients is decreased. (Figure 1).

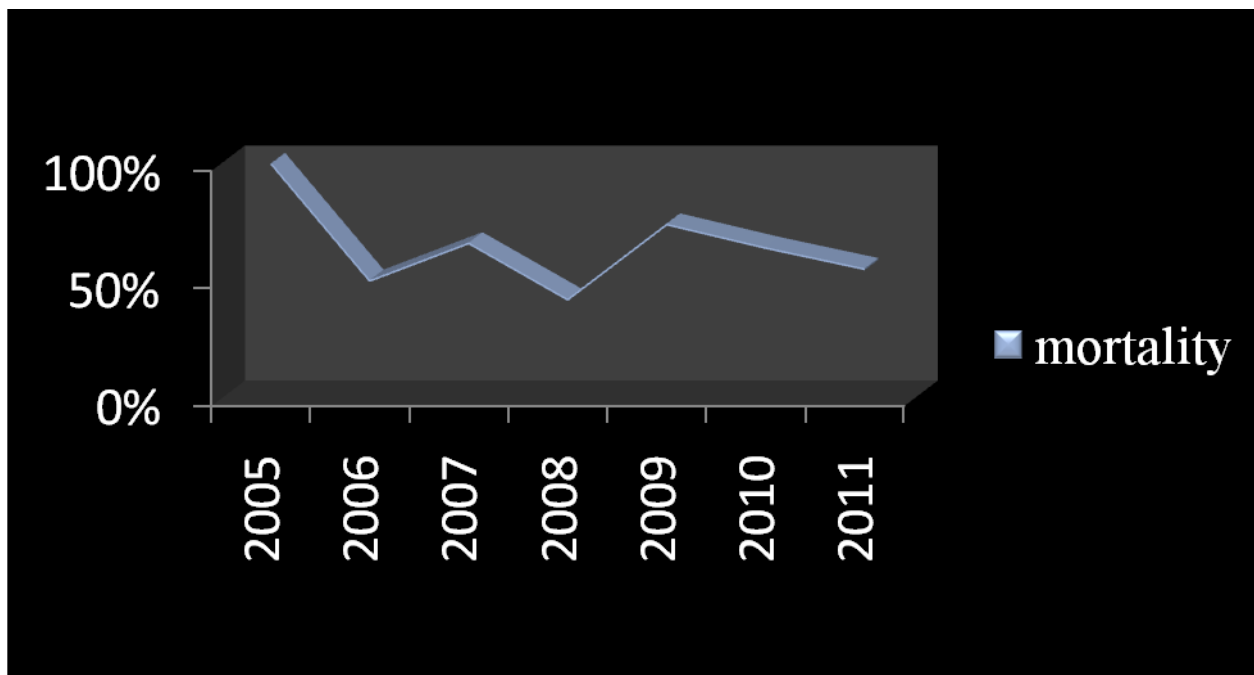


Including 25 women, total 31.2%, men – 55, total 68.7%. On this background, like in foreign researches, number of men with this disease is 2.2 times more. Figure 2.



Outcome of post critical care disease is highly depended on duration of critical care measures. Duration of treatment in case of 23 patients, constituted 40-60 minutes, 10 patients – 40-30 minutes, 15 patients – 20-15 minutes (Table N3). Lethality in our clinic is – 68.7%, including 66.6% - men, 2.0 times more than in women- 33.3%. Lethality according to years was altering as follows – 2006 (50.0%) and 2008 (42.8%) – decrease, and in 2005 (100%), 2007 (66.6%), 2009 (74.2%), 2010 (63.6%), 2011 (55.5%) – very high (Figure 4).

| Duration of reanimation (Min) | 40-60min | 40-30min | 20-15min |
|-------------------------------|----------|----------|----------|
| Number of patients            | 32       | 28       | 20       |



Number of bed-days constituted 510b/d. One patient was in the hospital for the longest period 115b/d, in vegetative condition, which had lethal outcome. From the survived patients the longest period was 15b/d, mainly 1-2 bed-day(s) and as well 2 patients – 8 b/d. Most of the patients have been died in the first 48 hours. 1 patient spent in clinic 47b/d, and the reason of death was the main disease and its further difficulties. Level of disability in survived patients was not high – 6.7%, released in vegetative condition, and the rest 93.3% were released in

satisfactory condition with the signs of encephalopathy. Waiting of bed days was 6.3 b/d. Total expenditures of treatment constituted 18545 USD, approximately 2290 USD per patient.

### Conclusion:

In the Critical Care Clinic there is fixed sharp increase of patients with post critical care disease; total lethality – 65%, disorder of rhythm and passing and myocardium acute infarct was shown in the most of the patients. As well it is important to mention that such cases are more frequent in men than in women, lethality is very high and most of the patients are dying within the first 48 hours, 6.7% of the survived patients are disables, others – 93.3% were released from the clinic with little signs of disability. Waiting for bed days constituted average 6.3 b/d. Expenditures per patient –estimated 2290 USD.

პოსტრეანიმაციული დაავადების მკურნალობის შედეგები კრიტიკული მედიცინის კლინიკაში

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საქართველოს კრიტიკული მედიცინის ინსტიტუტში 2005 წლიდან 2011 წლის სექტემბრამდე ამ პათოლოგიით გატარებულია 80 ავადმყოფი, 2005 წელს იყო 1 ავადმყოფი, 2006 წელს – 2 ავადმყოფი, 2007 წ. – 3. 2008 წ. – 7. ხოლო 2009 წ. 36, 2010წ. 22ავადმყოფი და 2011წ დღემდე 9 ავადმყოფი. ლეტალობამ შეადგინა 65%-ი, გადარჩენილთა რაოდენობამ 35%, ხოლო საწოლ-დღეთა რაოდენობამ 510. კრიტიკული მედიცინის ინსტიტუტის კლინიკაში აღინიშნა პოსტრეანიმაციული დაავადებით ავადმყოფთა მკვეთრი მატება, პაციენტთა უმრავლესობას ჰქონდა რითმისა და გამტარებლობის დარღვევა და მიოკარდიუმის მწვავე ინფარქტი, ასევე აღსანიშნავია, რომ მამაკაცებში უფრო ხშირად ვიდრე ქალებში, ლეტალობა ძალიან მაღალია და პაციენტთა უმრავლესობა იღუპება პირველ 48 საათში, ინვალიდი დარჩა გადარჩენილთაგან 6,7%, დანარჩენილი 93.3% კი გაეწერა კლინიკიდან სრული გამოჯანმრთელებით

თუ არ ჩავთვლით მანამადე არსებულ თანმსლებ დაავადებას. საწოლზე დაყოვნებამ საშუალოდ შეადგინა 6.3 ს/დ, ხოლო ხარჯები ერთ პაციენტზე საშუალოდ 2290\$-ია.

გასაღები სიტყვები: პოსტრენიმაციული დაავადება, უეცარი სიკვდილი, გულ-ფილტვის რენიმაცია.