Cord blood stem cells in a complex treatment of patients in a waiting list for heart transplantation.

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Abstract

Statement of the Problem: Prevalence of heart failure (HF) is expected at 2-3% of the population. One-year survival with medical therapy is about 57-64%. Due to the shortage of donor organs transplantation waiting time can stretch up to two years. For some patients with severe chronic HF medication is not effective. Cord blood stem cells (CBSC) is perspective, but is not enough researched in the treatment of HF. Methodology & Theoretical Orientation: 14 patients at the age of 49±6 years, with ejection fraction (EF) 22±5%, NYHA Class III-IV, with intravenous infusion of CBSC treatment effectiveness were analyzed. The results of clinical and special methods of patients with CBSC transplantation during 1-year research were investigated. Findings: In comparison with the initial state all of the patients failed to compensate manifestations of HF, achieved target of therapeutic doses of β-blockers, diuretics doses were significantly reduced. EF of left ventricle was improved from 22% to 28,5%, level NT-proBNP was decreased by 21,3±7%. Analysis on quality of life questionnaire MLHFQ showed improvement in subjective patient's status. Questionnaire SF-36 showed improvement in clinical and psychological health component. Risk of one- and three-year death on a scale MAGGIS was decreased from 16-20% to 11-17% respectively. Analysis of arrhythmias according to Holter monitoring prior to and during follow-up showed no progression in arrhytmological events after CBSC transplantation. Immunological analysis revealed no reactivation of viral infection, no rejection. Conclusion & Significance: The best results were obtained at 3-6 months after CBSC transplantation. Despite of the negative trend in the period from 9 to 12 months, the condition of patients was significantly better. These results demonstrated the efficiency of CBSC transplantation in complex conservative treatment of refractory HF, improvement of life quality and allow to extend waiting time of a donor organ.

Recent Publications

1. Kolettis T. M. (2006) Arrhythmogenesis after cell transplantation post–myocardial infarction: four burning questions–and some answers / T. M. Kolettis // Cardiovasc. Res. 69:299 – 301.
2. Qazilbash MH, Amjad AI, Qureshi S, Qureshi SR, Saliba RM, Khan ZU et al. (2009) Outcome of allogeneic hematopoietic stem cell transplantation in patients with low left ventricular ejection fraction. Biol Blood Marrow Transplant. 15: 1265–1270.
3. Abdul M. Mozid, Samer Arnous, Eva C. Sammut, Anthony Mathur. (2011) Stem cell therapy for heart diseases. Br. Med. Bull 98 (1): 143-159.
4. Georges Makhoul, Ray C.J. Chiu, and Renzo Cecere. (2013) Placental Mesenchymal Stem Cells: A Unique Source for Cellular Cardiomyoplasty. Ann Thorac Surg 95:1827–33
5. Roger V. L. (2013) Heart Failure Compendium Epidemiology of Heart Failure. Circulation Research. 113:646-659.
6. Eurotransplant Statistics (2013) // E-resource, access mode: http://www.eurotransplant.org/cms/mediaobject.php?file=year_20131.pdf

Biography

Artur Gabriyelyan dedicated his professional life to treatment of people heart diseases. He now has more than 25-year experience in cardiovascular surgery. His latest researches in CBSC transplantation were based on both hospital and educational institutions, which should lead to further investigations in the area with a wide potential for opinion pluralism.