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SUCCESSFUL TREATMENT OF REFRACTORY ANGINA (RA) BY MINIMALLY INVASIVE DELIVERY OF AUTOLOGOUS BONE MARROW MONONUCLEAR CELLS (ABMMC). MID-TERM FOLLOW-UP

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Abstract:

Background: ABMMC have been shown to be safe in early clinical trials for cardiac cell therapy. The goal of this study was to evaluate the use of ABMMC delivered via percutaneous retrograde coronary sinus technique (PRCST) to treat chronic RA

Methods: Twenty-six patients were evaluated from May 2005 to October 2006, 12 completed enrollment and follow-up. Median follow-up was 16 months, median age was 68 years old, M/F ratio was 10/2, all of them with RA and ischemic stress-induced myocardial segments assessed by SPECT. Median number of mononuclear and CD34+ cells infused were 7.88×10^8 and 1.206×10^7 . They were implanted by PRCST in selected veins using balloon occlusion "over wire" for 8 to 10 minutes.

Results: During the study period, no arrhythmias or increase in enzymes were observed. After a median time of 21 days, the ABMMC transplantation led to significant relief of angina symptoms and

improvement in functional class. All but one evaluable patient improved Canadian Cardiovascular Society class by one ($p < 0.001$) when compared at baseline and last follow-up. SPECT evaluation of ischemic myocardium percentage, median baseline was 38.2% and at one year follow-up this was reduced to 26.5% ($p = 0.002$). Rest LVEF by SPECT at baseline median: 31.6% and one year follow-up was median: 34.8%, $p = 0.066$; while stress LVEF did show improvement between baseline (median: 31.8%) and follow-up (median 38.6%, $p = 0.001$). Median number of ischemic myocardium segments by SPECT were reduced from a baseline of 6.5 to 4.5 ($p = 0.002$).

Conclusions : The treatment of RA using ABMMC transplantation delivered by PRSCT is safe. The PRSCT can be used when antegrade access is limited or not possible due to severe coronary disease. This study suggests improvement, clinical benefit and potential outcome durability of angina symptoms relief demonstrated by better functional class, myocardial perfusion and contractility. Randomized studies are in progress.

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