Abstract: P1662

All cause mortality outcomes of various types of stem cell therapies in patients with dilated cardiomyopathy: an updated meta analysis and systematic review

Authors:
Y Illahi1, M Nadeem2, M Munir Ahmad3, E Fatima Tariq4, J Safdar5, 1University Toledo Medical Center - Toledo - United States of America, 2Seton hall University Health Sciences, Medicine - South Orange - United States of America, 3Wayne State University - Detroit - United States of America, 4Multan Medical and Dental College - Multan - Pakistan, 5Swedish Covenant Hospital - Chicago - United States of America,

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Background: Dilated Cardiomyopathy (ischemic and non-ischemic) has been associated with very high mortality despite maximal medical and device therapy. Recently, several clinical trials involving different types of stem cells for the management of dilated cardiomyopathy have shown significant improvement in cardiac function, however, these studies were not powered to calculate mortality benefit. A previous meta analysis included 17 randomized controlled trials, however, there has been new randomized trials published since last meta analysis, hence the need for an updated meta analysis.

Purpose: Comparison of all cause mortality rate between stem cell therapy group and standard therapy group in patients with Dilated Cardiomyopathy followed for 12 months or more.

Methods: We conducted a systematic search of Medline (Pubmed) and Cochrane Central Register of Controlled Trials for abstracts and fully published studies (from inception through April, 2018) comparing various types of stem cell therapies with standard of therapy for patients with dilated cardiomyopathy (ischemic and non-ischemic).

Study Selection: Only fully published randomized clinical trials and abstracts of randomized trials comparing all cause mortality outcomes of various types of stem cell therapies and standard therapy for patient with dilated cardiomyopathy (ischemic and non-ischemic) followed over a period of 12 or more months were included in our meta-analysis. Total of 1392 studies were identified. Studies which were duplicate, non-randomized, included pediatric population, systematic reviews or meta-analysis, study designs or protocols, trials including gene therapy or had follow up of patients for less than 12 months were excluded.

Data extraction and Synthesis: Data were abstracted by two independent reviewers. Using Mantel-Haenszel method, a random effect model was used to calculate weighted Risk ratio (RR). RevMan 5.3 was used for statistical analyses.

Results: Twenty eight fully published randomized clinical trials and one abstract of randomized controlled trial met inclusion criteria of our analysis. Using Mantel-Haenszel method, a random effect model was used to calculate the weighted risk ratios. Our analysis included a total of 1662 patients. Stem cell therapy group showed significant reduction in mortality compared to standard therapy group (risk ratio [RR], 0.68; 95% confidence interval, 0.53-0.87) Fig 1. Tests for statistical heterogeneity did not show any significant heterogeneity p-value = 0.80 (I² = 0 %). Limitations of our study include selection, attrition and performance biases in the included studies. Fig 2 shows distribution of the included studies.

Conclusion: Stem cell therapy is associated with significant mortality reduction in patients with dilated cardiomyopathy (ischemic and non-ischemic). Our meta-analysis underscores the importance of conducting large randomized clinical trial to assess the mortality outcomes of stem cell therapy.