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PROTECTIVE EFFECT OF *DANGGUI (RADIX ANGELICAE SINENSIS)* WITH RADSCS CO-TREATMENT INDUCE CARDIAC FUNCTION IN SHR MODEL

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Hypertension is one of the leading causes of cardiovascular disease associated mortality. At present treatments used to control hypertension and its comorbidities do not exhibit satisfactory effects. Enhancing stem cell associated recovery function is one of the possible approaches to treat hypertension associated damages. Several strategies are used to enhance the regenerative benefits of endogenous as well as transplanted stem cells in treating cardiovascular diseases. In this respect, traditional Chinese medicine which is a primitive approach in treating various pathological problems attracts convincing interest. Root extract from *Danggui* with vasodilatory effects has been used as a traditional Chinese medicine (TCM) to regulate blood flow as well as to treat myocardial ischemic injury. This study evaluates the effect of *Danggui* in potentiating and complementing the effects of transplanted rat adipose derived stem cells (rADSCs) to regulate cardiac damages and to improve cardiac function in spontaneously hypertensive rats (SHR). SHRs with abnormal cardiac contractile function and apoptosis of the heart cells didn't show any significant change with tail vein treatment of rADSCs. However, in SHRs with rADSCs and orally administered *Danggui* the ejection fraction was reverted to that of the control and the apoptotic rates were significantly reduced. *In vitro* analysis also shows that *Danggui* treatment enhanced the survival of rADSCs. The novel study first time demonstrates that only stem cell transplantation in hypertensive condition doesn't improve cardiac function however, combined treatment of *Danggui* and rADSCs induce cell survival as well as improve cardiac function in both *in vitro* and *in vivo* model. The previous report from our lab shows that *Danggui* induces cell survival in cardiomyocytes. Further to verify in animal model, we found that combination treatment induces the cardiac function by properly regulating its ejection fraction and fractional shortening in SHR model, which can be used for regenerative medicine.

BIOGRAPHY

Parthasarathi Barik is pursuing his PhD at China Medical University, Taiwan. Earlier, he worked as a project fellow at CSIR Labs, India. He has published three papers and two more papers in international journals. He also presented few papers in the conferences and also contributed the research articles to conference proceedings. Currently he is working in rat adipose derived stem cells (rADSCs) and their therapeutic approach in various pathological problems with traditional Chinese drugs. He is also good in experimental works in laboratory along with related software exposures. Apart from his scientific credential he is very much active in the academic capacity building and human resource development where he discussed and helped the college students for the better understanding of life sciences. He also got a position in Physics Olympiad in national level.

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