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Letter to the Editor

Genome-edited MSCs that express GCP-2 and SDF-1α might be a novel therapeutic strategy for the treatment of ischemic vascular disease

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Recently, we have read with great interest Dr. Jeong and colleagues' article entitled "Dual chemotactic factors-secreting human amniotic mesenchymal stem cells via TALEN-mediated gene editing enhanced angiogenesis" [1] and manuscript entitled "Amniotic mesenchymal stem cells with robust chemotactic properties are effective in the treatment of a myocardial infarction model" written by Dr. Kim et al. [2] which were published in the International Journal of Cardiology. In Dr. Jeong et al.'s study, they found that granulocyte chemotactic protein-2 (GCP-2) and stromal-derived factor-1α (SDF-1α) gene-edited amniotic mesenchymal stem cells (AMSCs/GS) enhanced proangiogenic and vasculogenic properties. Transplanted AMSCs/GS promoted endothelial cells transdifferentiation and provided a favorable environment for neovascularization.

Ischemic vascular disease (IVD) is a common disease that threats human health. Recently, mesenchymal stem cells (MSCs) were found promising in regenerative medicine and therapy for IVD such as cerebral ischemia, myocardial infarction, et al. [3, 4]. MSCs are derived from mesoderm and have the capacity of regeneration and differentiation. In animal models, researchers found the transplanted MSCs were able to migrate to lesions, secrete nutrition factors, remit inflammatory response, promote plasticity and revascularization, thereby minimizing the damage. Moreover, chemokines such as GCP-2 and SDF-1α play a pivotal role in the process of immunity, homoeostasis, and angiogenesis. Currently, studies also indicated that the overexpression of GCP-2 and SDF-1α promoted the angiogenic potential of MSCs [5].

In conclusion, AMSCs/GS transplantation might be a novel therapeutic strategy for IVD. More studies confirming its treatment effects in human would be very valuable.

Conflict of interest

The authors report no relationships that could be construed as a conflict of interest.

Transparency document

The Transparency document associated with this article can be found, in online version.

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