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Letter to the Editor

Human adipose-derived stem cells combined with high mobility group box protein 1 might be a novel therapeutic strategy for the treatment of peripheral arterial disease

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Recently, we have read with great interest Dr. Biscetti and colleagues' article entitled "The angiogenic properties of human adipose-derived stem cells (HASCs) are modulated by the High mobility group box protein 1 (HMGB1)" [1] which was published in the International Journal of Cardiology. In this study, the authors found that the co-treatment of HASCs and HMGB1 determined an improved neovascularization in peripheral arterial disease (PAD) mouse models. They also demonstrated a critical role that HMGB1 played in HASCs therapy.

PAD is a common disease that threats human health. Recently, there has been increasing interest in using HASCs to treat PAD [2]. HASCs can differentiate into endothelial cells and can enhance angiogenesis by secreting angiogenic and anti-apoptotic factors, such as vascular endothelial growth factor and hepatocyte growth factor [3]. However, in this study, HASCs administration alone was not able to yield significant increase of blood flow recovery, which should be further investigated.

HMGB1 is a nuclear, 215-aa protein composed of two tandem DNA-binding domains and a 30-aa-long acidic C-terminal tail [4]. It plays a pivotal role in various physical and pathological processes, including inflammatory reaction, cell migration and angiogenesis. This study also revealed the key role played by HMGB1 in ischemia-induced angiogenesis.

In conclusion, HASCs combined with HMGB1 might be an effective therapeutic strategy for PAD. However, further experiments should be performed to confirm its curative effects in human.

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