Letters to the Editor

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- Include no more than 500 words of text, three authors, and five references
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Vascular endothelial growth factor before cells

To the Editor:

In a recent article by Chachques and associates,[1] the authors compared locally delivered vascular endothelial growth factor (VEGF) administration versus isolated or combined delivery of skeletal myoblasts and VEGF in an ovine model of myocardial infarction. The investigators demonstrated decreased left ventricular dilation and improved contractility (regional fractional area change) regardless of VEGF administration. The author concluded that "further studies are warranted on prevascularization of myocardial scars with angiogenic therapy."

In the April 2004 issue of this journal, we demonstrated improved survival of transplanted fetal cardiomyocytes in a rat infarct model and improved exercise tolerance of these animals with pretreatment of the infarct with VEGF 3 weeks before cell implantation.[2] We used this delayed interval, based on our earlier studies examining the angiogenic effects of VEGF,[3] because we believed that it would allow critical time for angiogenesis to develop, thereby providing perfusion and supporting the survival of subsequently implanted cells.

We have subsequently duplicated these findings by using skeletal myoblast implantation. In these animals, the left ventricular ejection fraction was significantly improved in rats that were pretreated with VEGF and that later received skeletal myoblast transplants compared with control animals that received cells alone or VEGF and cells as a simultaneous treatment. This is noteworthy in that skeletal myoblasts have been perceived to be "hardier" than fetal cardiomyocytes or other cell implant types, but angiogenic pretreatment proved to be beneficial in this case as well.

In light of our findings, we agree with Chachques and colleagues and believe that angiogenic pretreatment may be a critical component of cellular cardiomyoplasty strategies for the treatment of myocardial infarction.

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