

## **Selective Intracoronary Infusion of Bone Marrow-Derived Progenitor Cells in Patients with Non-Ischemic Dilated Cardiomyopathy: Initial Results of the TOPCARE-DCM Trial**

Dr. Ulrich Fischer-Rasokat

J.W. Goethe-University, Department of Cardiology, Frankfurt/Main, Germany

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The therapeutic potential of bone marrow-derived progenitor cells to improve cardiac function after acute myocardial infarction has received increasing attention over the last few years. In addition, initial clinical trials also tested the use of progenitor cells in patients with chronic post-infarction heart failure. However, it is certainly unknown whether there might be a therapeutic opportunity for the use of progenitor cells in patients with heart failure due to non-ischemic dilated cardiomyopathy.

The results of the TOPCARE-DCM trial provide strong and conclusive evidence that the intracoronary infusion of adult bone marrow-derived progenitor cells might be associated with improved cardiac function in patients with non-ischemic dilated cardiomyopathy. Regional pump function of the heart was significantly improved in the area targeted by intracoronary cell infusion. Moreover, one year after stem cell therapy, serum levels of BNP – a reliable and objective marker of cardiac function during daily life – were significantly improved in the patients receiving intracoronary infusion of progenitor cells. Finally, the extent of functional improvement was closely correlated with the functional activity of the infused cells measured immediately prior to application. This data indeed suggests a cause-and-effect relationship between intracoronary cell infusion and improved heart function.

Taken together, the TOPCARE-DCM trial provides proof-of-concept for the potential therapeutic usefulness of stem cell transplantation in patients with non-ischemic dilated cardiomyopathy. Given the excellent safety profile, larger trials seem to be warranted in order to document that the intracoronary application of bone marrow-derived progenitor cells are able to reduce mortality and morbidity in patients with advanced heart failure due to non-ischemic dilated cardiomyopathy.