Methods: In a blinded experiment, genetically diabetic and wildtype control mice (each n=20) were transplanted with recombinant adenoviruses encoding the ligand-binding ectodomain of VEGF-165, the VEGF receptor Flk-1, or control DNA. Twenty days after injection, mice were killed, and tissue was harvested for histology, perfusion, and capillary quantification.

Results: Compared to control, Flk-1 transplanted mice showed a significant increase in capillary density and myofilament content. Interestingly, the expression of Flk-1 in the wildtype control group did not show any significant increase in capillary density or myofilament content.

Conclusion: VEGF and Flk-1 transplanted mice show a significant increase in capillary density and myofilament content compared to control mice, suggesting a role for VEGF in the repair of diabetic cardiomyopathy.

Angiogenic Potential of Subcutaneous Adipose Stromal Cells for Autologous Cell Therapy

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Background: Adipose tissue is composed of adipocytes and a stromal-vascular fraction (SVF). SVF cells, including adipose-derived stem cells (ADSCs), have shown potential for therapeutic applications due to their multilineage differentiation capacity and paracrine effects. However, the delivery of SVF cells is limited by the requirement of cell numbers often exceeding those available. Therefore, emerging as a novel treatment option in patients with coronary artery disease, autologous delivery of ADSCs is being investigated.

Methods: In a blinded experiment, genetically diabetic and wildtype control mice (each n=10) were transplanted with adipose-derived stromal cells (ADSCs). Tissue was harvested for histology, perfusion, and capillary quantification.

Results: Compared to control, ADSC transplanted mice showed a significant increase in capillary density and myofilament content. Interestingly, the expression of ADSC in the wildtype control group did not show any significant increase in capillary density or myofilament content.

Conclusion: ADSC transplanted mice show a significant increase in capillary density and myofilament content compared to control mice, suggesting a role for ADSC in the repair of diabetic cardiomyopathy.