

Persistence of Allogeneic Fibroblasts in wounds treated with scaffold-based, three-dimensional fibroblasts cultures.

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The survival of allogeneic fibroblasts implanted into a wound remains controversial because of possibility of immune rejection. We have now implanted 88,000 fibroblast cultures, corresponding to more than 20,000 patients, without observing acute immune rejection. We have also failed to detect antibody formation against the allogeneic cells in 50 patients or T-cell activation in 25 patients. The persistence of the cells was determined in a clinical trial for the treatment of venous stasis ulcers in which female patients received an implant on a single occasion. Biopsies were taken at 1 week and when the ulcer healed or at 12 months. At least one of the patients had never carried a male child. The male specific gene SRY was detected by nested PCR, capable of detecting single molecules, demonstrated through the statistics of detection at high dilutions. Determinations were performed on multiple samples from each patients, diluted so that the marker frequency was reduced below 1 molecule per 10 samples. DNA derived from the implanted fibroblasts was detected invariably in the biopsies taken at 1 week. Implant-derived DNA was also detected in 6 of 9 biopsies taken at healing or 6 months. We conclude that the allogeneic fibroblasts are capable of surviving at the wound site for at least 6 months. We have not observed acute immunological rejection of the allogeneic cells. Implant destruction through indirect immunological reaction cannot be excluded, despite the prolonged survival of the cells. However, if it occurs, it appears to have no clinical manifestation.