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The effect of mesenchymal stem cells on skin allograft rejection in mice

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Recently, protocols based on stem cell therapies have helped to understand long-sight goals in transplantation. Many substantial progresses have been made over the years using stem cells for improving successful transplants and decrease the rate and severity of graft rejection, modulation of regulatory cell types, accelerate and improve damaged tissue regeneration and induction of immune tolerance and immunosuppression. There is no doubt that the use of mesenchymal stem cells in transplantation fields had a positive effect on having a better outcome. The main goal of this experiment was to isolate and purificate mesenchymal stem cells from mice and administration of MSCs to decreasing the rate and severity of skin allograft rejection in mice. Animals divided into three individual groups which had a single dose of systemic injections of MSCs in different times of allotransplantation of C57BL/6 mice skin graft to Balb/C recipient. Our results have shown that autologous MSCs can extend the time until skin graft rejection and its best to administer MSCs after transplantation. This result is probably because of migration of MSCs to graft site due to local inflammation reactions that has already existed in recipient body because of transplantation. So, injecting cells after transplantation has a better effect. But, there is still a lot of variables to study and proof this hypothesis. In the other hand, MSCs from donor can also can extend the graft survival, even though they are allogeneic to recipient's body and activate immune system. So the mesenchymal stem cells either syngeneic to host or to donor, are effective on increasing survival time of graft; but in just a single dosage they are unable to induce specific immune tolerance.

Biography

Shirin Nouraein has completed her MS degree in Biomedical/Tissue Engineering from University of Tehran and had cooperation with skin team at University of Tehran. Currently, she is working at Royan Institute of Stem Cell and Medicine Regenerative as a Research Assistance.

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