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Stem cell therapy for glomerular diseases

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Stem cell therapy (SCT) has the potential to develop a novel therapeutic approach to glomerular diseases (GDs). The main goal of SCT is to achieve and sustain the recovery of altered renal functions. We present our preliminary experience of allogeneic SCT included adipose-derived mesenchymal stem cell (AD-MSC) and hematopoietic stem cells (HSC) for GDs. This was IRB approved non-randomized open-labeled prospective clinical study included 8-volunteer GDs' patients with their informed consent subjected to allogeneic SCT from May, 13 to December, 17. Volunteer donors from blood-related family members were subjected to adipose tissue resection and BM aspiration for in vitro generation of AD-MSC and HSC respectively. Patients were diagnosed with GDs and confirmed by renal biopsy. Primary FSGS was noted in 4, LN in 2, and primary IgAN and MePGN in 1 patient each. In vitro generated SCs were infused via femoral catheterization under local anesthesia into bilateral renal arteries, portal circulation, and thymus (by IITV guidance), with the mean cell volume of 70ml, 30ml, and 3ml respectively, under conditioning of Bortezomib and subtotal lymphoid irradiation. Infused mean MSC count was 34.89×10^4 cells/KgBW and HSC count was 4.97×10^8 cells/KgBW with mean CD34+/CD90+/CD73+ of 0.82%, 38.9% and 21.1% respectively. SCT was safe and uneventful. Over mean follow-up of 31.38 months, there was sustained reduction in mean 24-hours proteinuria from 1.356 to 0.45gm/day, decreased SCr from 1.14 to 0.78mg/dL and increased S.alb to 3.68gm/dL with improvement in creatinine clearance and eGFR. Thus, Co-infusion of AD-MSC + HSC offers safe, viable approach to achieve remission in GDs.

Biography

Umang G Thakkar got his DCH (Paediatrics) from India and has >10-years' experience in the field of regenerative medicine. Currently, he is working as an Associate Professor at IKDRC-ITS, Ahmedabad, India. His research interests are stem cell therapy for various disorders, pediatrics. He has >40 publications in various medical journals. He is included as an editorial board member in various journals and a reviewer also. He also received the Government Scholarship and distinguished Awards in the past. He was granted a Young Investigator Award in TTS 2016 at Hong Kong, for his research paper.

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