Abstract

The available therapeutic modalities for diabetes mellitus (DM) include: diet and lifestyle modifications, oral hypoglycemic agents, insulin injections and pancreatic islet cell transplantation. The efficacy of autologous hematopoietic stem cell transplantation (HSCT) in type 1 DM was first reported in the year 2007. Since then, several studies have confirmed not only the safety, but also the efficacy of autologous HSCT in both types of DM.

High-dose immunosuppressive therapy combined with infusion of hematopoietic stem cells (HSCs) downregulate the autoreactive T-cells, renew the immune system, improve the immune regulatory networks and ultimately induce insulin independence in type 1 DM. The increased C-peptide and the decreased HbA1C levels encountered in animal and human trials have shown that stem cell therapies can offer an effective treatment for type 1 and possibly type 2 DM. Recently, clinical trials in humans have utilized various forms of stem cell therapies including: HSCs, umbilical cord blood stem cells, embryonic stem cells as well as mesenchymal stem cells.

Our group at King Fahad Specialist Hospital in Dammam, Saudi Arabia has recently published the first world report of curing insulin dependent DM in a patient who received an autologous HSCT in order to control his multiple myeloma in March 2013.