Utilization of Wharton's Jelly-Derived Mesenchymal Stem Cells in Immunomodulation of Autoimmune Psoriasis: A Case Study

Ahmad Alghadi[1], Sumaya Aldajah[1], Mahasen Zalloum[1], Sameh Al-Bakheet[1], Marwa Tapponi[1], Mohammed Abu-Shukair[2], Adeeb AlZoubi[1,3*]

1. Stem Cells Arabia, 246 AlMedina AlMunawara St., Amman, Jordan

2. Queen Rania's Hospital for Children, Royal Medical Services, Amman, Jordan

3. Division of Hematology/Oncology, Department of Medicine, University of Illinois at Chicago College of Medicine, Chicago, IL, USA

Psoriasis is an incurable immune-mediated disease, which affects around 2% (over 125 million) of people in the worldwide. It is characterized by an imbalance of T helper (Th) 2 and Th1/ Th17 cytokines, and dysregulation of T regulatory cells . In psoriasis patients, dermaotcytes are replaced every 3-5 days in instead of the usual 28-30 days. As a chronic and systemic inflammatory disease, psoriasis may lead to the development of metabolic disorders (cardio-vascular diseases, crohn's disease, insulin resistance and osteoarthritis). Mesenchymal stem cells (MSCs), considered as 'medicinal signaling cells', possess a unique immunomodulatory role with a main potential in treating various diseases due to their regenerative capacity. In this study, a 15-year-old boy was reported with psoriasis, was treated by Whartons Jelly-Mesenchymal stem cells (WJ-MSCs). The patient underwent six

intravenous injections divided into two cycles; the injections were administered according to mesured criteria, including body mass index, age, and others. In the first cycle, 3 injections were given to the patient containing (22×10^6, 34×10^6 and 52×10^6) cells, respectively; whereas in the seocnd cycle 3 injections were given to the patient three months after the last dose in the first cycle, containing (14×10^6, 15×10^6 and 15×10^6) cells, respectively. During a 12 months follow up, the patient demonstrated progressive improvements in his skin lesions, osteoarthritis, psychological state and growth curve. The above results present a unique approach to the treatment of psoriasis and show the benificial effects of WJ-MSCs in treatment of autoimmune conditions, and may pave the way for larger clinical studies.