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Intracavernous administration of adipose stem cells: A new technique of treating erectile dysfunction? Preliminary report of 6 cases

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Objectives: After revolutionized treatment of ED with PDE5 inhibitors, approximately 35% of patients are non-responsive. An important cause of this is vascular and smooth muscle dysfunction, as well as nerve atrophy. Stem cells are characterized by anti-inflammatory activities, as well as possibility of differentiating into tissue relevant to the penile architecture, and stimulation of angiogenesis. We report the effects of intracavernosal application of adipose stem cells (ASC) on diabetic erectile dysfunction.

Materials and Methods: Six type 2 diabetics who had failed to achieve an erection for at least 6 months despite medications, and who are currently awaiting penile prostheses, participated in this study. All laboratory results were normal, except for erectile dysfunction and diabetes mellitus. A total of 1.5×10^7 adipose stem cells was infused into the corpus cavernosum. No immunosuppressive measures were taken in any of the patients. International index of erectile function-5, Encounter Profile Question 3 (SEP3), GAQ, erection diary, blood glucose diary, and medication dosage were followed for 6 months.

Results: The mean age was 67.3 years (range, 55-81 years). Morning erections were recovered in 5 participants within 2 month, and for all except 1 by the 95 days, and maintained for more than 4 months. Rigidity increased as the result of stem cell therapy alone, but was insufficient for penetration. With the addition of PDE5 inhibitor before coitus, 3 achieved penetration and experienced orgasm, and maintained for more than 6 months. All but 1 reported increased desire. During follow-up, 1 returned for prosthesis, 1 returned to a nonerectile condition at 7 months, and 4 maintained erection sufficient for coitus with medication until the 9th month. Blood glucose levels decreased by 2 weeks, and medication dosages were reduced in all. Glycosylated hemoglobin levels improved after treatment.

Conclusions: Human adipose stem cell therapy has positive effects on erectile dysfunction in diabetes mellitus patients. Stem cells mediate mechanism may contribute to these positive effects.

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