

ADIPOSE-DERIVED REGENERATIVE CELL INJECTION FOR THE TREATMENT OF POST-PROSTATECTOMY INCONTINENCE: PHASE I CLINICAL STUDY

Hypothesis / aims of study

Cell therapy is promising modality for the management of urinary incontinence. We report initial experience of transurethral injection of autologous adipose-derived regenerative cells (ADRCs) for the treatment of persistent urinary incontinence after radical prostatectomy.

Study design, materials and methods

A total of six men with persistent urinary incontinence after radical prostatectomy signed an informed consent and were enrolled. Under general anesthesia, about 50 mL of adipose tissue was obtained from the patients' lower abdomen by liposuction. ADRCs were separated by centrifugation using the Celution cell-processing device. The ADRCs were transurethraly injected into the rhabdosphincter and submucosal space of the proximal urethra using 22Fr cystoscope with injection needle. To confirm the functional and anatomical improvement, preoperative and postoperative 24 hour pad test, validated patient questionnaire, urethral pressure profile, and magnetic resonance imaging (MRI) were performed in all patients during 12-week follow-up.

Results

Except initial 2 patients, urinary incontinence progressively improved after 2 weeks of injection. At 12 weeks after injection, urinary incontinence improved in terms of leakage volume measured by a 24 hour pad test. Assessment of subjective symptoms and quality of life on the basis of questionnaire showed similar improvement. The mean maximum urethral closing pressure increased from 44.0 to 63.5 cmH₂O. MRI showed an increase of the functional urethral length (from 6.1 to 8.3 mm) between lower rim of pubic bone and bladder neck. Adverse events, such as pelvic pain, inflammation or de novo urgency, were not observed after the operation in all cases during the postoperative follow-up.

Interpretation of results

Transurethral injection of autologous ADRCs improved urinary incontinence functionally and anatomically without severe adverse events.

Concluding message

This study shows that transurethral injection of autologous ADRCs can be safe and effective treatment modality for post-prostatectomy incontinence. Although further study with larger cases and long-term outcomes are needed, this study can be a footstone of cell therapy for urinary incontinence.

References

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Disclosures

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