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ULTRASOUND GUIDED STEM CELL THERAPY OF URINARY INCONTINENCE

Hypothesis / aims of study

In the present study safety and efficacy of transurethral ultrasound guided injections of autologous stem cells in treatment of urinary incontinence have been evaluated.

Study design, materials and methods

112 incontinent patients (age: 36-84 years; 77 women, 35 men) were included in a clinical study to investigate whether urinary stress incontinence can be effectively treated with transurethral ultrasound guided injections of autologous myoblasts and fibroblasts. The patients suffered from stress or mixed urinary incontinence.

Before and after therapy a defined incontinence score, changes in quality of life as well as morphology and function of urethra and rhabdosphincter were evaluated. Modern sonographic techniques (transurethral ultrasound, three-dimensional transvaginal/transrectal ultrasound) were used to investigate the lower urinary tract. Furthermore, urodynamic and laboratory tests were performed pre- and postoperatively.

Small skeletal muscle biopsies were taken from the upper arm under local anesthesia. The fibroblasts were mixed with a small amount of collagen as carrier material and injected into the urethral submucosa to treat atrophies of the mucosa. The myoblasts were directly injected into the rhabdosphincter to reconstruct the muscle.

Results

In 95 patients (67 women, 28 men) urinary incontinence was cured after injection of stem cells. Quality of life was dramatically improved postoperatively. Thickness of urethra and rhabdosphincter as well as activity and contractility of the rhabdosphincter were increased significantly after therapy. In 17 patients incontinence was improved postoperatively. No side effects or complications occurred.

Interpretation of results

Ultrasound guided injection of autologous stem cells is a minimally invasive, well tolerated and very effective treatment modality to cure urinary incontinence.

Concluding message

The present data support the conclusion that this new revolutionary therapeutic concept has the potential to become a standard treatment modality.

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