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A SYSTEMATIC REVIEW OF AUTOLOGOUS STEM CELL THERAPY IN FEMALE STRESS URINARY INCONTINENCE (SUI)

Hypothesis / aims of study: To determine the effect of autologous stem cell therapy in female SUI. This systematic review assesses clinical outcome of autologous stem cell therapy compared with other techniques.

Study design : Retrospective study, Systematic review.

Materials and methods: Criteria for considering studies for this review :

Types of studies: This systematic review consisted of all randomized controlled trials and clinical controlled-trials that compared effectiveness between injections of autologous stem cells and conventional treatments in women with SUI. Quasi-randomized trials and clinical trials were excluded.

Types of participants : We included studies whose subjects were women who had SUI with only mild hypermobility of the urethra or intrinsic sphincter insufficiency, which did not improve with pelvic floor exercise. We also required good status of health and signed informed consent. Exclusion criteria were urge incontinence and pronounced hypermobility of the urethra. The patients between 45 - 59 years old are the most affected from SUI.

Types of intervention: Injections of autologous stem cells (i.e. myoblasts or fibroblasts) compared with other techniques, e.g., collagen injection, pubovaginal sling.

Types of outcome measures :

Primary outcomes: Incontinence score , Contractility of the rhabdosphincter and thickness of the urethra and the rhabdosphincter measured by transurethral ultrasonography, Incontinence quality of life score, Urodynamic test: cystoscopy, pressure-flow studies, and urethral closure pressure.

Secondary outcomes: Complications: stricture, voiding dysfunction, urinary tract obstruction, urinary retention measured by cystoscopy, urodynamic test and interview the effectiveness

Search methods for identification of studies: MEDLINE, Cochrane Library, and Scopus were monthly searched from June 2008 to September 2009. We also manually searched from reference lists and from the library of our university. No restrictions were placed on language, publication date, or publication type for the initial search within these databases. Search terms included "stem cells", "stress urinary incontinence", "SUI", "myoblast", "fibroblast" and "controlled trials".

Methods of the review: All review authors assessed the trials for methodological quality without consideration of results. We excluded the trial by selection criteria .Each author has read all trial abstracts received from the sources described above. Articles were excluded from further analysis when they reported no clinical outcome, i.e. a review, editorial letter, or an animal study.

Results : There was only one randomized control trial with data available for 63 women with SUI(1). After 1-year follow up, the median incontinence score of patients treated with autologous cells significantly decreased compared with patients treated with collagen (p value <0.0001, RRR=0.895, NNT=1.235). The rhabdosphincter in patients treated with autologous cells was thicker and more improved in contractility than patients treated with the standard treatment (p value <0.0001). The quality of life score and electromyography activity, significantly changed in patients treated with autologous cells than those given collagen therapy (p value <0.0001). The treatment with transurethral ultrasonography-guided injections of autologous myoblasts and fibroblasts in women with SUI is significantly more effective than treatment with standard endoscopic injections of collagen. But this study was retracted by researchers at the Medical University of Innsbruck in Austria after an official investigation found that the clinical trial it reported had serious ethical and procedural flaws(2). The Lancet journal also retracted the study from publication. So due to the retraction of this study, there is no acceptable study included.

Interpretation of results Only one study can be recruited in our review but was retracted.

Concluding message The evidence from this review suggested that at present, stem cell therapy for SUI should not be applied as a standard treatment. Further randomized controlled trial are needed for making definite conclusion.

References

1. S Kleinert and R Horton, Retraction—autologous myoblasts and fibroblasts versus collagen for treatment of stress urinary incontinence in women: a randomised controlled trial, *Lancet* 372 (2008), pp. 789–790
2. Dyer C. Lancet withdraws research paper and warns authors about rules of "gift authorship" *BMJ* 2008;337:a1711

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Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	No
This study did not require ethics committee approval because	This is the systematic review.
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes