radical prostatectomy because erectile dysfunction is secondary to denervation of the penis. Loss of innervation causes severe and irreversible morphologic changes in the penis, including induction of endothelial and smooth muscle cells apoptosis, collagen induction or fibrosis in the corpus cavernosum. Currently, cell-based therapy offers a promising strategy for neuroprotection or tissue-protection after bilateral CN injury. Bone marrow-derived progenitor cells (BMPCs) such as endothelial progenitor cells (EPCs) and smooth muscle progenitor cells (SPCs) can be derived from peripheral blood and be differentiated more easily into vascular cells during arterial remodeling than stem cells. In addition, administration of EPCs can increase vascular repair in animal models and has demonstrated some therapeutic benefits for cardiovascular conditions in clinical trials. A tight cooperation between endothelial cells and smooth muscle cells is important to regulate vessel maturation and stability. Therefore, we investigate the therapeutic effects of intracavernous injections of EPCs and SPCs into the corpora cavernosa of rats with erectile dysfunction (ED) caused by bilateral CN injury. The results show maximum ICP and all other functional parameters of erectile function are significantly reduced in the vehicle-only group versus the sham, EPC treatment and SPC treatment groups (all $P<0.001$). Smooth muscle cell content decreases in the vehicle-only versus the sham and EPCs treatment and SPCs treatment groups (both $p<0.01$). Expressions of von Willebrand factor (vWF) and endothelial nitric oxide synthase (eNOS) in the dorsal artery are significantly higher in the EPC treatment than the vehicle-only group ($P<0.05$). In conclusion, EPCs and SPCs treatment restores erectile function in a rat model of bilateral CN injury through recruitment of EPCs toward the dorsal artery and preservation of smooth muscle cells in the corpus cavernosum, respectively. These findings elucidate the therapeutic potential of EPCs and SPCs for treating ED in humans.

Keywords: Cavernous nerve (CN); endothelial progenitor cells (EPCs); smooth muscle progenitor cells (SPCs); erectile dysfunction (ED)

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AB036. Evolution and advances in the field of male urinary incontinence: a review of urological prosthesis surgery

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Objective: To provide a review of the various advances in the development of male continence therapy.

Methods: A systematic literature search was conducted to identify published literature relevant to male continence treatment and urological prosthesis.

Results: Over the last decade, significant advances have been made in terms of designs and technology for male continence therapy. Over the last decade, synthetic slings for PPI have gained considerable popularity because of cost and its non-mechanical action, and has a role in mild to moderate stress incontinence. Artificial urinary sphincters and other urinary sphincteric-like devices remains the standard of care for severe incontinence, radiation-induced stress incontinence and in salvage surgery.

Conclusions: While the current urinary continence devices are largely effective in the carefully selected patient group, they treat the symptoms but do not address the underlying pathophysiology of stress incontinence. Until the emergence of a better engineered continence surgical device, and/or further success in stem cell or tissue engineering, significant challenges remain in the search for an ideal urinary continence device.

Keywords: Male stress urinary incontinence; male sling; artificial urinary sphincter; urological prosthesis; technological advances

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