Quality Care

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Adult Muscle Stem Cells for the Treatment of Stress Urinary Incontinence

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Urinary incontinence affects over 3 million American women. Approximately 70% of women with incontinence have symptoms of stress urinary incontinence (SUI), which is the most common form of bladder control loss. While SUI is a major health problem for women, it is often under-reported and as a result under-treated.

SUI is at least in part related to a weakening of the pelvic floor muscles, which support the urethra. If support of the urethra is insufficient, increased pressure may allow urine to pass causing urine loss. Thus, SUI is commonly associated with physical activities such as coughing, sneezing and laughing. The incontinence episode is often sudden and uncontrollable, happening with no warning. SUI is nearly twice as common in women, but men may experience urinary incontinence after prostatectomy due to prostate cancer treatments. Some of the possible treatments available to decrease SUI include surgical procedures and pelvic floor exercises. Unfortunately these treatments are not always effective or may have associated risks and/or side effects.

The first research trial in the U.S. utilizing stem cells to treat women with stress urinary incontinence began at William Beaumont Hospital in Royal Oak, Michigan. Enrollment in the study started in the Fall of 2008. The goal is to enroll 48 participants. The study was recently expanded to includetwo other centers, the University of Toronto and Vanderbilt University. Beaumont will continue to enroll patients until the desired number of study participants is met. Participation in the research study is approximately 3 months. Research-related activities include physical exams, procedures to assess bladder functioning, questionnaires, and a variety of diagnostic tests.

The purpose of the study is to assess the safety and potential effectiveness of muscle-derived cells in the treatment of SUI. The study participant's own muscle cells are used in the investigational treatment. These cells are obtained through a small needle muscle biopsy from the thigh. Special types of cells are isolated from the biopsy and multiplied. Four to six weeks later, these multiplied cells from the participant are injected into or around the muscles that control urination in an effort to strengthen them and prevent leakage. The ultimate goal is to greatly improve or even totally eliminate urinary incontinence. Both the biopsy and injection procedures take less than 30 minutes each to perform. The procedures are performed in the research office and the recovery time is short. Participants can go home and be active right away, as opposed to other procedures where they need to restrict their activity to heal.

Although data are not currently available from the U.S. study, researchers have reported on one-year follow-up of women participating in the first North American trial in which SUI was treated with muscle-derived stem cell injections. Carr and colleagues reported that improvements in SUI were seen in five of eight women, with one woman achieving complete bladder control. Improvement in incontinence started between three and eight months after injection. Cure or improvement continued at a median of 0 months and no serious adverse events or side effects were reported.

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Although the number of study participants presented in the report is small, the results are encouraging. Researchers say muscle-derived cell therapy could offer hope to people looking for a life free from problems of stress urinary incontinence. ❖

References:

Carr LK, Steele D, Steele S, et al: -Year Follow-up of Autologous Muscle-Derived Stem Cell Injection Pilot Study to Treat Stress Urinary Incontinence. Int Urogynecol J 2008; 9: 88- 883.
National Kidney and Urologic Disease Clearinghouse (NKUDIC) at http://kidney.niddk.nih.gov.