DIABETIC BLADDER DYSFUNCTION

**Focus Area:** Urological Complications of Obesity and Diabetes  
**Research Type:** Translational

**Description:**
Diabetes mellitus causes debilitating and devastating complications. In some series clinical studies, 52-87% of randomly evaluated diabetic patients were found to have urologic symptoms. The classic symptoms associated with diabetic bladder dysfunction include decreased bladder sensation, increased bladder capacity, and impaired detrusor contractility with resultant increased postvoid residual urine. Recent clinical and experimental evidence indicate a strong presence of storage problems such as urgency, and urge incontinence in both type I and II diabetes. Studies of diabetic bladder dysfunction from our and other investigators on small animal models of diabetes, indicate the time-dependent bladder dysfunction in diabetes. We expect to uncover the important steps leading to this time-dependent changes Further, we expect to find the evidence for how to interfere with the process of disease in the diabetic bladder dysfunction and hence prevent or stop the development of urinary incontinence and poor bladder emptying.

STRESS URINARY INCONTINENCE

**Focus Area:** Urinary Incontinence  
**Research Type:** Translational

**Description:**
Stress urinary incontinence (SUI) is the most common type of urinary incontinence and affects approximately 25 million Americans of all ages, with a disproportionally higher prevalence among women. Birth trauma from vaginal delivery is one of the widely recognized risk factors in the genesis of SUI in women. Over the last decade, animal models of SUI have increasingly been employed to understand the pathogenesis of SUI. Vaginal distension (VD) has been used as a surrogate of vaginal delivery for creation of SUI in rats. To take advantage of transgenic capabilities in mechanistic studies of SUI, we have recently created and reported a model of SUI by VD in virgin mice. We have shown that VD causes reversible SUI in virgin mice. Recovery of continence function following VD was associated with spontaneous repair of the external urethra sphincter (EUS) and reinnervation of the urethra. We expect to explore the mechanisms behind the spontaneous repair and target to develop new preventive and treatment strategies for stress urinary incontinence.