Research to Improve Urological Health for Women and Girls: Focus on Prevention

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LOWER URINARY TRACT SYMPTOMS (LUTS) occur in a broad range of diagnoses, including bladder infections, urinary incontinence, voiding dysfunction, overactive bladder, and interstitial cystitis/bladder pain syndrome. These symptoms are common, costly, and consequential for females from childhood to old age. Obesity, diabetes, metabolic syndrome, cardiovascular disease, sexual activity, and vaginal childbirth have been associated with increased risk of LUTS. The prevalence of LUTS in the United States is expected to increase substantially over the next several decades as the population ages and the prevalence of risk factors (*e.g.*, obesity, diabetes) increases, imposing an ever increasing medical and economic burden on the population. Future research to define the extent to which lower urinary tract conditions are barriers to treatment and prevention of major public health concerns such as obesity, falls and fractures, and cardiovascular disease is needed to better understand the importance of lower urinary tract conditions to overall health.

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) spearheads research support at the National Institutes of Health for studies of nonmalignant urological conditions. Most NIDDK-funded research in LUTS has focused on highly symptomatic women who seek treatment. Studies sought to expand understanding of the mechanisms that cause symptoms and also focused on evaluating treatments. For example, the Urinary Incontinence Treatment Network (UITN) conducted randomized clinical trials in women with urinary incontinence, studies that were enhanced by strong collaboration between urologists and urogynecologists. This network has set the standard for the design and conduct of randomized controlled clinical trials in urinary incontinence, and carried out several head-to-head comparisons (SiSTER, TOMUS, BeDri, VALUE) of different treatment options, including surgery, in highly symptomatic women.

We at the NIDDK are now expanding the Institute's research focus to the larger group of women with LUTS who have not yet sought help, or have less severe LUTS. By

the time most women seek treatment, their condition has become chronic and more severe, thus, more difficult to manage and costly. We want to understand how the burden of LUTS in women can be reduced by improving bladder health through primary and secondary prevention, as these approaches are likely to have the greatest impact on reducing the public health burden of LUTS and contribute to healthy aging.

However, there are multiple barriers to the treatment, let alone prevention, of LUTS. Most women are embarrassed to discuss their bladder symptoms with healthcare professionals and are unaware that, in many instances, their condition is treatable. Instead, they accept their symptoms as consequences of childbearing and/or aging; something that must be "put up with." Most healthcare professionals have limited training in evaluation and treatment of LUTS and common bladder conditions, aside from bladder infections. Therefore, healthcare professionals are not likely to screen for symptoms or conditions they are not comfortable treating. This reluctance of women and healthcare professionals to talk about LUTS has contributed to a dearth of knowledge about the factors that contribute to healthy bladder function and the factors that initiate, promote, and maintain LUTS.

The NIDDK established the prevention of lower urinary tract symptoms (PLUS) Research Consortium in 2015, which includes researchers from diverse backgrounds (*e.g.*, women's pelvic medicine, adult and adolescent primary care, health behavior, prevention science, and public health) to begin addressing these challenges. The goal of the PLUS Research Consortium will be to establish the knowledge and information necessary to permit future studies of prevention of LUTS in adolescent girls and women. The consortium will study biological factors, individual knowledge, beliefs and behaviors, the social and physical environment, and health services necessary for prevention. Ultimately, we anticipate that this research will inform public and healthcare professional education efforts and contribute to health-related policies and regulations.

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Prevention research is not new to the NIDDK. We have supported longstanding research initiatives for prevention of obesity and diabetes. The PLUS Consortium will synergize with our two established cooperative urological health research networks, symptoms of lower urinary tract dysfunction research network (LURN) and the multidisciplinary approach to the study of chronic pelvic pain (MAPP) research network. We will continue efforts to improve our understanding of lower urinary tract dysfunctions, which should lead to more effective treatments and, eventually, improved urological health for women of all ages.

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