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COMMENTARY

An Overview of Neuro Urology and Neurogenic Detrusor Overactivity

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DESCRIPTION

Numerous attempts have been made globally to create clinical practise recommendations for neurogenic lower urinary tract dysfunction (NLUTD), which is a dysfunction of the lower urinary tract in the setting of neurological disease. These recommendations are susceptible to the same gaps because they are founded on the same body of data. For instance, issues like sexual and bowel dysfunction in the context of NLUTD, the best timing for upper tract surveillance, the assessment of renal function in people who are non-ambulatory or have low muscle mass, and the alterations of diagnostic and treatment modalities for communities and nations with limited resources are not adequately addressed.

In addition, the guidelines' ultimate suggestions and conclusions share a lot of similarities. This redundant labour requires a significant investment of time and energy, which, in our opinion, could be used to address evidentiary gaps. In this article, we advocate for a worldwide coordinated effort to develop a singular, resource-independent, all-encompassing guideline on NLUTD, neurogenic sexual and neurogenic bowel disorder. The need for and pursuit of focused study tackling the knowledge gaps should be expressed. This will make it possible to turn the attention to bridging the holes in the proof for upcoming recommendations.

The disciplines of neurology and urology are joined by the vibrant and quickly growing subspecialty of neuro-urology. Despite not having the same reputation as diseases like cancer or heart disease, neuro-urology is growing in popularity, particularly in light of a growing elderly population and the high incidence of neurological disorders. Lower urinary tract dysfunction caused by a pertinent neurological condition is known as neurogenic lower urinary tract dysfunction (NLUTD). NLUTD may be caused by a variety of brain disorders, and both its symptoms and treatment options are varied.

NLUTD can occur up to 75% of multiple sclerosis patients after 10 years, 96% of spina bifida patients, 50% of Parkinsonian syndrome patients at disease start, 83% of stroke patients, and 95% of spinal cord injury patients. Due to advancements in the treatment of these neurological conditions, attention is now being paid to improving patients' quality of life as well as other common sequelae of NLUTD, such as urinary incontinence and infections, in addition to long-term protection from renal dysfunction brought on by pathological changes in the lower urinary tract. The numerous initiatives made by organisations around the globe to develop standards for the diagnosis and treatment of NLUTD are evidence of the significance of this.

A neurologic injury that damages the neural circuits regulating micturition causes a serious lower urinary tract disease called neurogenic detrusor over-activity (NDO), which is characterised by urinary urgency, retention, and incontinence. This review's goal is to present a thorough framework of the animal models presently being used to study this disease, with an emphasis on its molecular causes, NDO. The last 10 years' worth of animal-based simulations of NDO was searched for electronically using PubMed and Scopus. After excluding reviews and non-original pieces, the search turned up 648 articles.

51 papers were carefully chosen and included in the study. The most commonly used model to investigate NDO was spinal cord injury (SCI), which was followed by meningomyelocele, stroke, and animal models of neurodegenerative diseases. The most frequently used animals were rats, especially females. Urodynamic techniques were used in the majority of trials to assess bladder function, with awake cystometry being the procedure of choice. Numerous biochemical pathways, such as adjustments in inflammatory processes, control over cell viability, and receptors on neurons, have been discovered. Inflammatory indicators, apoptosis-related elements, and molecules linked to ischemia and fibrosis were discovered to be elevated in the NDO bladder.

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CONFLICTS OF INTEREST

Author declares that there is no conflicts of interest.

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