



Editorial

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Transformation in Neurourology

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We are now living in an era where the term “artificial intelligence” (AI) is no longer unfamiliar. AI is increasingly being utilized across various industries and is recognized as a critical factor for success, extending beyond the mere exploration of its potential. These transformative changes are also taking place in the field of neurourology, with many researchers endeavoring to improve their research outcomes through the use of advanced information and communication technologies. To address these changes within neurourology, we are publishing this special issue under the theme “Transformation in Neurourology.” True to the theme of “transformation,” this special issue includes studies on the current applications of AI in urinary disorders and the lifecycle of diseases, encompassing diagnosis, treatment, and management.

In this issue, first, Cho et al. [1] presented a general overview of the applications of AI in urinary disorders and discussed the applications of AI for interstitial cystitis in neurology. Meanwhile, Kim et al. [2] explored emerging trends in AI-based urological imaging technologies and their practical applications. These studies demonstrated the applicability and potential clinical efficacy of AI by detailing currently utilized AI technologies and assessing their accuracy.

This issue also introduces various research on lifecycle support for people with urinary disorders. First, in the field of diagnosis, Choi et al. [3] applied vision transformer-based deep learning models to computed tomography images to enhance the detection of urolithiasis, confirming the potential of the proposed method to assist clinicians in diagnosis with relatively high accuracy. In the treatment domain, Na et al. [4] proposed the design

of digital therapeutic content to improve urinary dysfunction. The data used in the therapeutic content primarily consist of chronic disease data. This study explored factors essential for patient management by suggesting content compositions that could aid in improving urinary dysfunction. On the topic of monitoring-based management, Tu et al. [5] validated the effectiveness of optical wearables for monitoring volume in neurogenic bladder patients. The study confirmed the feasibility of monitoring patients with urinary disorders and supporting patient management through the use of additional devices. These studies demonstrate that the application of AI technologies to lifecycle management—from diagnosis to treatment and management—can effectively support patients with urinary disorders. Further evidence of transformation in neurourology through the application of AI was shown in a study by Oh and Kim [6]. This research investigated the Korean public’s perceptions of urology by analyzing online news data using latent Dirichlet allocation topic modeling. It revealed a shift in interest towards a broader spectrum of health management, encompassing surgery, treatment, and daily urination management.

The studies featured in this special issue are exemplary in their objectivity and reliability. While there is still considerable work to be done, the accomplishments have been thoroughly validated for application in the medical field. Consequently, a transformation in neurourology is already underway. These changes are vital for enhancing patient quality of life, and we are in an era that necessitates diverse trials and the verification of advanced technologies. In keeping with this transformative period, we anticipate a new shift in the research paradigm within



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neurourology.

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