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Editorial

Urolithiasis: From pathogenesis to management (part two)

Embarking on a scholarly exploration of the intricate landscape of urolithiasis, the second part of the special section in the *Asian Journal of Urology* serves as a continuum to the scholarly discourse initiated in its predecessor. Urolithiasis is a common condition affecting 5%–10% of the global population [1]. Despite significant progress in understanding the pathogenesis and management of urolithiasis, it remains a substantial public health concern. The objective of the special section in the *Asian Journal of Urology* is to provide an updated knowledge on the pathogenesis, diagnosis, and management of urolithiasis. In this part two of the special section, we still focus on the aspects of stone pathogenesis, treatment, complications prevention, and the application of new technologies.

Ureteroscopy (URS), a primary means of treating urinary tract stones, is associated with the dangerous complication of sepsis, correlated with high morbidity and mortality rates [2]. In this part, Prof. Palle J.S. Osther's team elucidates the logical connection between intrarenal reflux and sepsis occurrence during URS. They emphasize the importance of reducing intrarenal pressure during URS, considering individual patient differences and relevant factors during the surgical procedure to enhance safety.

Extracorporeal shock wave lithotripsy (SWL) plays a crucial role in the treatment of urinary stones of less than 20 mm in size [3], and new technologies and concepts in SWL deserve closer attention. Prof. Alberto Budia-Alba's team summarizes the new technologies and applications related to SWL, including burst wave lithotripsy and high-intensity focused ultrasound beams, allowing more effective stone fragmentation while minimizing adverse effects on surrounding tissue. They underscore the critical aspects of patient selection in SWL, including cautious consideration of contraindications and accurate assessment of stone characteristics. Key factors ensuring treatment success include the proper application of shock waves, patient positioning, pain control, and stone localization.

Pharmacological treatment proves to be an effective means of preventing stone formation and reducing recurrence [4]. Prof. Christian Seitz's team elucidates the latest

developments in urinary stone pharmacotherapy, covering different types of urinary stones, including calcium stones, uric acid stones, and struvite stones. The article also addresses the side effects of medications, emphasizing the need to consider patient-specific conditions in treatment choices under medical guidance. This provides valuable insights for clinical applications, facilitating the development of more individualized and effective treatment plans.

The intracavitary treatment of urolithiasis is closely tied to the evolution of laser technology. We are pleased to invite Prof. Wang Kunjie's team to review the advancements in laser technology and its applications in urinary tract stone management. The emergence of new laser technologies such as thulium fiber laser and Moses technology may potentially set new standards in the future [5].

The formation of urinary stones is a complex process influenced by multiple factors, including genetic factors, family history, and metabolism [6,7]. Prof. Ben H. Chew's team provides a comprehensive review of the relationships between urinary stone formation and various factors. These include genetic influences, family history, metabolism, the development of high-throughput sequencing technology, contributions from multiple genes and molecular pathways, as well as hormonal, dietary, and environmental factors.

Surgical interventions for stone procedures carry the risk of complications, and minimizing complications during percutaneous nephrolithotomy, URS, and retrograde intrarenal surgery is a focal point for urologists involved in urinary stone management [8,9]. Prof. Eric Edison's team, with rich experience, asserts that meticulous planning, interdisciplinary teamwork (including collaboration with radiology, anesthesia, microbiology, and nursing teams), and good operative technique can minimize the risk of complications in endourology. In this article, they provide comprehensive and practical recommendations for reducing complications during endoscopic procedures.

We earnestly hope that the part two of the special section in the *Asian Journal of Urology*, together with the part one, will serve as a valuable resource for urologists and researchers in the field of urolithiasis. We extend our

<https://doi.org/10.1016/j.ajur.2024.01.010>

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sincere appreciation to all the authors for their outstanding contributions to this special section. It is our aspiration that these contributions will offer an excellent overview of urolithiasis prevention, treatment, and the management of related complications in the realm of urological research.

Author contributions

Drafting of manuscript: Wei Zhu, Ru Huang, Guohua Zeng.
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Conflicts of interest

The authors declare no conflict of interest.

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31 January 2024