



BOOK REVIEW: NO MORE KIDNEY STONES

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Abstract: The book "No more kidney stones" is a significant work for understanding the complex world of kidney stone disease. It provides comprehensive information from the formation of kidney stones to treatment options, offering essential guidance for both patients and healthcare professionals. The book emphasizes the importance of a multidisciplinary approach by detailing modern medications and surgical interventions, as well as the roles of various medical specialties in the treatment of kidney stones. The authors aim to raise awareness and develop more effective methods in the treatment of kidney stone disease. The sections cover the formation, symptoms, and treatment methods of kidney stones, diet and lifestyle changes, risk factors, modern medical interventions, and multidisciplinary treatment approaches. The book presents a comprehensive overview of the pathophysiology, diagnostic methods, and treatment options for kidney stone disease. It offers scientifically based guidance, emphasizing the complexity of the disease and the need for a multidisciplinary approach to its management. The importance of customized diagnostic and treatment approaches according to patients' individual characteristics is detailed in each section. The book serves as a valuable reference for anyone seeking information on kidney stone disease, providing practical information for clinical practice. This work enhances nephrologists' professional competence by offering extensive and in-depth knowledge, allowing them to develop a deeper and more comprehensive understanding of kidney stone disease.

Keywords: Kidney stone, Kidney disease, Nephrology, Book review

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1. Book Review

Rodman JS, Sosa RE, Seidman C. 2007. No More Kidney Stones: The Experts Tell You All You Need to Know about Prevention and Treatment. John Wiley & Sons, New York, US, pp: 288.

"No More Kidney Stones" is an essential work for understanding the complex world of kidney stone disease. The book is divided into three main sections, each offering a detailed explanation through subsections and examples. By covering a wide range of topics, from the formation of kidney stones to treatment options, it provides valuable guidance for both patients and healthcare professionals. The book highlights the importance of a multidisciplinary approach, detailing the role of various medical specialties involved in the management of this condition, alongside modern medications and surgical interventions used in kidney stone treatment. The authors aim to raise awareness and promote the development of more effective treatments for kidney stone disease through this work, enriched with both scientific and practical insights.

The first section comprises 13 chapters. It begins with an explanation of what kidney stones are, followed by a description of how they form, their symptoms, and medical interventions. It provides information on the different types of kidney stones and the distinct causes associated with each type. The authors explain that

kidney stones vary in chemical composition, with calcium oxalate stones being the most common. They emphasize the role of genetic factors, dietary habits, and lifestyle in the formation of these stones.

The rising incidence of kidney stones is likely attributable to dietary and environmental factors. In most pediatric patients, the etiology of kidney stones can be determined, with metabolic factors such as hypercalciuria and hypocitraturia, urinary tract infections, and urinary stasis being the primary causes. Additionally, the negative impact of excessive sodium intake, the link between inadequate fluid consumption and stone formation, and the role of plant-based diets in reducing urinary crystal formation compared to animal protein intake are discussed.

In approximately half of pediatric patients, the etiology of kidney stones is related to genetic or lifestyle-driven metabolic factors. A quarter of patients have urinary tract infections, and 20% experience urinary obstruction or stasis. Some researchers suggest that the Western diet, characterized by high protein and salt intake and low vegetable consumption, is a major contributing factor to the increasing prevalence of kidney stones, due to its association with environmental and dietary habits such as hypomagnesiuria and low urine volume (Edvardsson et al., 2018).

Pediatric patients with kidney stones present with



different symptoms depending on their age group. While adolescents commonly report flank pain, younger children may exhibit more vague symptoms such as nausea, vomiting, and irritability (Chu et al., 2016). Although hypercalciuria is considered one of the most significant etiological factors, a study suggests that hypocitraturia accounts for 58% of metabolic causes, followed by hypercalciuria at 48.3%, hyperuricosuria at 2.2%, and hyperoxaluria at 4.4% (Kovacevic et al., 2012). Disruptions in calcium metabolism are among the most common metabolic abnormalities in pediatric and adolescent kidney stone patients, which could potentially be addressed. Although collecting 24-hour urine samples in children can be challenging for metabolic evaluation, the use of solute/creatinine ratios in spot urine samples can be helpful. Most reference ranges for lithogenic substances in urine are age-dependent.

Hereditary metabolic disorders are also associated with nephrolithiasis (NL). In the differential diagnosis of pediatric stone disease, conditions such as phosphoribosyltransferase (APRT) deficiency, cystinuria, Dent disease, hypercalciuria, nephrocalcinosis (FHHNC), familial hypomagnesemia, and primary hyperoxaluria should be considered. It is known that these disorders, except for cystinuria, often lead to chronic kidney disease (CKD). Children with these conditions typically experience kidney stone attacks within the first decade of life, and recurrent stone formation is commonly observed (Edvardsson et al., 2018).

A basic blood panel assessment should be performed in all patients with kidney stones. In addition to routine biochemical tests, measuring serum phosphorus, uric acid, and bicarbonate levels may also be beneficial (Goldfarb and Arowojolu, 2013). Kidney function should be regularly evaluated, both initially and in the following years. If the initial metabolic assessment (spot urine) does not show abnormalities, it is recommended to measure levels of cystine, magnesium, glycolate, glycerate, and glyoxylate in a 24-hour urine analysis (Yang et al., 2017).

In the section addressing kidney stone treatment methods, the authors discuss surgical interventions and lithotripsy. However, they emphasize that the primary focus should be on preventing stone formation, with an emphasis on dietary and lifestyle modifications. In this context, the importance of which foods to consume or avoid, the significance of fluid intake, and the effects of regular physical activity in reducing the risk of kidney stones are thoroughly explored.

In the second section, which comprises 9 subheadings, the authors emphasize the importance of dietary and lifestyle changes in preventing kidney stone formation. Implementing such changes as a strategy for preventing kidney stones is regarded as a crucial prevention method that requires a multidisciplinary approach in modern medicine. Particularly in the field of urology, research has shown that dietary habits are a determining factor in kidney stone formation and that overly restrictive diets

are often unsustainable (Linder et al., 2013; Malieckal and Goldfarb, 2020). Although dietary changes are recommended to reduce the risk of kidney stones, instead of strict restrictions, modifying current dietary habits in a reasonable manner is suggested. In this section, the authors provide an in-depth analysis of the effects of dietary and lifestyle changes on kidney stone formation, offering strategies tailored to individual needs.

When making dietary recommendations for kidney stone patients, individual differences should be taken into account. A personalized diet plan should be developed by considering the patient's medical history, stone type, metabolic analyses, and lifestyle (Siener and Hesse, 2002). Generally, it is more effective to make strategic changes while preserving existing eating habits, rather than completely restructuring the diet to address habits that contribute to kidney stone formation. For instance, limiting excessive animal protein consumption and controlling oxalate and sodium intake are changes that allow patients to maintain the diet plan in the long term. Linder et al. (2013) highlighted in their research that excessive protein consumption is one of the factors contributing to kidney stones, and thus, protein intake should be carefully planned (Linder et al., 2013).

Increasing fluid intake plays a critical role in preventing kidney stone formation. Specifically, maintaining a daily urine output of at least 2-2.5 liters minimizes the risk of stone formation by reducing urine concentration (Malieckal and Goldfarb, 2020). Insufficient fluid intake is a factor that increases crystal formation in the urine. The EPIC study by Turney et al. (2014) demonstrated that maintaining adequate fluid intake through diet can significantly prevent the formation of calcium oxalate stones in particular.

Children with kidney stones should be encouraged to increase water intake, reduce sodium intake, and maintain normal calcium levels in their diet without restriction. Additionally, increasing the consumption of potassium and citrate is important. To achieve these goals, children should be especially directed to increase their intake of fruits and vegetables. Such dietary habits can help reduce the formation of kidney stones and have positive effects on overall health.

Limiting oxalate intake is particularly important for kidney stone patients, as calcium oxalate stones are the most common type of stone (Siener and Hesse, 2002). The consumption of foods high in oxalate, such as chocolate, spinach, beets, and nuts, should be carefully controlled. However, oxalate management is not solely about avoiding these foods; portion control, fat intake, and consuming oxalate with calcium in the same meal are also critical strategies. Calcium binds with oxalate in the intestines, reducing oxalate absorption and thereby lowering the likelihood of oxalate crystallization in the urine (Turney et al., 2014).

In addition to dietary oxalate intake, excessive vitamin C consumption can increase oxalate production in the

body, thereby raising the risk of kidney stones. Special care should be taken with vitamin C supplements, as high doses can increase the risk of kidney stones (Siener and Hesse, 2002). Moreover, herbal products, protein powders, and certain vitamin supplements commonly sold in health stores can also pose risks due to their oxalate content. Therefore, individuals in high-risk groups are advised to carefully examine such products before use.

Animal protein, particularly from meat, fish, and poultry, is a significant factor in kidney stone formation. Excessive consumption of animal protein increases calcium, uric acid, and oxalate levels in the urine, raising the risk of stone formation (Turney et al., 2014). In particular, a decrease in urine pH associated with protein consumption can contribute to the formation of uric acid stones. Therefore, it is important to maintain a balanced protein intake to reduce such risk factors.

In addition, sodium intake has a substantial effect on kidney stone formation. High sodium intake increases calcium excretion in the urine, contributing to the formation of calcium oxalate stones (Siener and Hesse, 2002). Therefore, reducing salt intake and avoiding processed foods is recommended. Reducing foods high in sodium helps balance calcium levels in the urine, thereby lowering the risk of stone formation.

In addition to diet, lifestyle factors play a significant role in the formation of kidney stones. Studies have shown that certain occupational groups have a higher risk of kidney stones. For example, professionals such as teachers, who have limited access to restrooms, may have insufficient fluid intake, leading to decreased urine volume and an increased risk of kidney stones (Maleckal and Goldfarb, 2020). Similarly, individuals such as business travelers or healthcare professionals who stand for extended periods may also have inadequate fluid intake. This can increase the risk of crystallization in the urine, paving the way for kidney stone formation (Linder et al., 2013).

In addition, fluid loss is a significant risk factor for individuals who engage in excessive physical activity or work in hot climates. Particularly, soldiers, construction workers, or individuals who perform intense exercise may experience an increase in concentrated minerals in their urine and a higher risk of kidney stone formation if they do not consume sufficient amounts of fluids (Turney et al., 2014). For these occupational groups, increasing fluid intake stands out as a key strategy for reducing the risk of kidney stones.

The third section of the book consists of five subsections and begins by explaining the various medical specialties involved in the treatment of kidney stones and when these specialists intervene. It is noted that urologists, nephrologists, endocrinologists, infectious disease specialists, and primary care physicians play roles in the treatment of kidney stone disease. Primary care physicians typically manage simple and uncomplicated cases of kidney stones, while more complex cases are

referred to urologists or other specialists. Urologists perform surgical interventions and procedures such as stone removal. Nephrologists and endocrinologists investigate and treat the underlying metabolic causes of stone formation. Infectious disease specialists, on the other hand, treat urinary tract infections caused by kidney stones.

This section also explains the modern medications used in the treatment of kidney stone disease and how these drugs work. After discussing ineffective methods used in the past, various drugs used today are detailed. Medications such as alkaline potassium salts, thiazides, allopurinol, and pyridoxine are explored, with a focus on how they are used to prevent kidney stone formation and their potential side effects. It is emphasized that these medications should be used under medical supervision and in recommended doses, as misuse could lead to health problems. For example, while alkaline potassium salts raise urine pH to prevent uric acid stones, thiazides reduce the amount of calcium in the urine. Allopurinol decreases uric acid production and is also used for some patients with calcium oxalate stones.

The author explains when and how kidney stone patients should be treated. Depending on factors such as the size and location of the stone and the patient's overall health, some stones may pass spontaneously, while others may require medical intervention. Conditions requiring urgent intervention include complete kidney blockage or infection. In cases of infection, antibiotic treatment may not be sufficient, and emergency drainage of the kidney may be necessary.

Acute treatment is usually administered in emergency departments, and as in adults, urological interventions are frequently required for pediatric patients (Van Batavia and Tasian, 2016). In cases where pediatric patients present with suspected nephrolithiasis (NL), the first imaging modality of choice is ultrasonography. However, in cases where ultrasonography is diagnostically inadequate and suspicion of NL persists, non-contrast computed tomography (CT) is recommended. It should be noted that CT involves a higher radiation dose and thus its use should be carefully considered (Passerotti et al., 2009).

The author also outlines the historical development of kidney stone treatment methods and the various techniques used today. In modern medicine, open surgery is rarely needed. Instead, methods have been developed to break up stones, allowing them to pass in the urine, or to remove them directly from the kidney using various instruments. These techniques include extracorporeal shock wave lithotripsy (ESWL), cystoscopy, ureteroscopy, and percutaneous stone surgery. Each method has its own advantages and disadvantages. Therefore, the most appropriate treatment option should be determined based on the patient's condition and the characteristics of the stone.

Lastly, the chapter discusses what to expect during the kidney stone treatment process. It emphasizes that

knowing what will happen before, during, and after treatment can alleviate patients' concerns and help them manage the process better. For instance, the process of stent placement and removal, what discomforts patients may experience, and how they can cope with these discomforts are explained in detail. Additionally, the author provides information on kidney stone fragmentation procedures (ESWL) and other surgical interventions. The preparation phases, what will happen during the procedure, and the potential side effects after the procedure are discussed in depth. Important points, such as when patients should consult their doctors in cases of pain, infection, or other complications, are also emphasized.

In conclusion, the book provides a comprehensive overview of the pathophysiology, diagnostic methods, and treatment options for kidney stone disease. The author offers a scientifically grounded guide, highlighting the complexity of the disease and the need for a multidisciplinary approach to its management. The importance of personalized diagnostic and treatment approaches based on the individual characteristics of the patients is detailed and supported in each chapter. The book serves as a valuable resource not only for healthcare professionals interested in kidney stone disease but also for patients, providing them with the knowledge and understanding to participate in the treatment process more consciously.

The entire book is a comprehensive work that allows for a multidimensional and in-depth examination of kidney stone disease. By providing a wide range of information, from the pathophysiology of kidney stones to diagnostic and treatment methods, the author equips readers with a solid academic foundation. The book offers both practical insights for clinical practice and theoretical knowledge that facilitates a better understanding of the disease. By offering scientifically-based guidance, the book helps readers develop a comprehensive understanding of kidney stone disease. Overall, this work is an essential reference source for anyone seeking information about kidney stone disease.

Reading this book enhances the professional competence of nephrologists by providing them with extensive and in-depth information. Starting from the pathophysiology of kidney stone disease, the book offers a comprehensive examination that extends to modern treatment methods. As a result, nephrologists gain a better understanding of the root causes, risk factors, and development processes of the disease. In particular, acquiring detailed knowledge about the metabolic causes of kidney stones and how to manage them enables nephrologists to offer more effective treatment options to their patients. Additionally, learning about the role of different medical specialties in kidney stone treatment strengthens multidisciplinary collaboration and allows for the adoption of more integrated approaches during the treatment process.

The book also helps nephrologists update their

knowledge by providing current information on modern treatment techniques and innovative approaches. Detailed explanations of techniques such as extracorporeal shock wave lithotripsy (ESWL), cystoscopy, ureteroscopy, and percutaneous stone surgery enable nephrologists to gain a better understanding of the advantages and disadvantages of these methods. This knowledge assists them in making more informed and safer treatment decisions in their clinical practice. Furthermore, by offering guidance on the side effects that patients may encounter during treatment and how to manage these side effects, the book allows nephrologists to provide better education and counseling services to their patients. Such detailed information and guidance improve treatment outcomes and encourage patients to take a more active role in the treatment process. Therefore, the comprehensive and up-to-date information presented in the book enriches nephrologists' clinical practices and elevates the quality of patient care.

Author Contributions

The percentage of the author(s) contributions is presented below. All authors reviewed and approved the final version of the manuscript.

	H.G.Ö.
C	100
D	100
S	100
DCP	100
DAI	100
L	100
W	100
CR	100
SR	100

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision.

Conflict of Interest

The author declare that there is no conflict of interest.

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