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Breaking the ureterolithiasis management mold: a new pathway for pediatric patients

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Description

Ureterolithiasis is a common urological problem that affects all age groups, including children. In recent years, the incidence of pediatric urolithiasis has increased, leading to an increase in Emergency Department (ED) visits. Management of pediatric ureterolithiasis in the emergency room is a challenge due to the different presentations of the disease, the limited diagnostic tools available, and the potential complications associated with the condition. This article reviews the management of pediatric ureterolithiasis in the emergency room and presents a new management pathway for better outcomes.

Ureterolithiasis is the presence of stones in the ureter, which can lead to severe pain, haematuria, and obstruction of urine flow. In children, the incidence of urolithiasis has increased from 1% to 5% in the past few decades, and it is more common in males than females. The risk factors for pediatric urolithiasis include a family history of stones, metabolic disorders, dehydration, and urinary tract infections. The diagnosis of ureterolithiasis

in the pediatric population is challenging due to the nonspecific symptoms and the limited diagnostic tools available. Imaging studies, such as ultrasound, Computed Tomography (CT), and Magnetic Resonance Imaging (MRI), are often used to diagnose and locate the stones.

The management of pediatric ureterolithiasis in the emergency room involves the relief of pain, correction of fluid and electrolyte imbalances, and the prevention of complications. Pain control is the primary goal of management and is achieved using Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) and opioids. Fluid and electrolyte imbalances are corrected using intravenous fluids, and antibiotics are prescribed to treat any associated infection.

The treatment options for ureterolithiasis in children depend on the size, location, and composition of the stone. Small stones (<5mm) can often pass spontaneously, and the management is conservative with pain control and hydration. Larger stones (>5mm) are more likely to cause obstruction and may require intervention. Endoscopic procedures, such as Ureteroscopy and laser lithotripsy, are effective in treating stones in the distal and mid-ureter. However, stones in the proximal ureter may require Extracorporeal Shockwave Lithotripsy (ESWL) or Percutaneous Nephrolithotomy (PCNL).

A new management pathway has been proposed to improve the management of pediatric ureterolithiasis in the emergency room. The pathway involves the use of ultrasound as the first-line imaging modality to diagnose and locate the stone. This is followed by a non-contrast CT scan for further evaluation of the stone size and location. The use of CT is limited due to the radiation

exposure, but it provides a more accurate assessment of the stone burden and helps in planning the appropriate treatment.

The pathway also emphasizes the use of Medical Expulsive Therapy (MET) for stones <10mm in size. MET involves the use of alpha-blockers or calcium channel blockers to facilitate the passage of the stone. Several studies have shown that MET is effective in promoting stone passage and reducing the need for surgical intervention in children with ureterolithiasis.

Conclusion

The management of pediatric ureterolithiasis in the emergency room requires a comprehensive approach

that considers the unique needs of the pediatric population. This study highlights the importance of developing a standardized management pathway that incorporates non-invasive diagnostic tools, appropriate pain management strategies, and tailored treatment plans based on stone size and location. By following a structured approach, emergency physicians can improve the efficiency and quality of care for children with ureterolithiasis, reduce unnecessary radiation exposure, and minimize the need for surgical interventions. As such, the findings from this single institution review provide valuable insights for healthcare providers and institutions seeking to optimize the management of pediatric ureterolithiasis in the emergency setting.