Chapter 6

CURRENT APPROACH TO KIDNEY STONE DISEASES IN THE EMERGENCY DEPARTMENT

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Introduction

The primary focus of emergency medicine management involves the alleviation of pain, evaluation of renal function, and assessment of the probability of spontaneous passing of urinary stones. The occurrence of this phenomenon is influenced by various factors including geographic location, cultural background, dietary habits, and genetic predisposition. The condition has a global prevalence of approximately 20% and exhibits a recurrence rate of 50% (1).

The prevalence rates for renal calculi in the United States are reported to be 11% in men and 7% in women. Furthermore, the incidence of kidney stones has shown a consistent increase across all age groups and genders (2). Approximately 70% of ureteral calculi cases are observed in adults between the ages of 20 and 50 years, with a higher incidence recorded in regions characterized by hot or arid climates.

Pathophysiology

The process of stone production necessitates the presence of a state of supersaturation in the urine, wherein dissolved ions exceed their solubility limit and then precipitate into a solid phase. Enhancing the volume of solvent (urine) while reducing the quantity of solute substances (such as uric acid, calcium, oxalate) sent to the renal system can contribute to preventive measures. Certain chemicals, such as citrate and magnesium, have the ability to impede the process of crystal precipitation and the subsequent production of stones.

Approximately 80% of calculi consist of calcium oxalate, calcium phosphate, or a mix of the two. Conditions such as immobilization syndrome, hyperparathyroidism, absorptive and renal hypercalciuria are associated with

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and AUA for getting rid of distal ureteral stones when there is no reason to do surgery right away.

Most of the time, opiate painkillers are used to treat pregnant patients because NSAIDs are not safe for them (20). Since nifedipine is safe to use during pregnancy, it has been suggested as a MET for pregnant women (20), but its effectiveness in the general population has been questioned (21). The safety of alpha blockers during pregnancy is not known.

Conclusion

The three main factors that can be used to forecast the successful transit of stones without the requirement of surgical intervention are the size of the calculus, its location, and the level of discomfort experienced by the patient. The primary determinant influencing the successful transit of a calculus through the genitourinary tract is its size. Calculi measuring less than 5 mm in diameter have a 90% probability of spontaneous passage within a four-week timeframe.

However, not every patient with renal colic needs imaging. Imaging is recommended when a high-grade obstruction is suspected, or when the symptoms are not typical, the diagnosis is uncertain, the patient has a single kidney or a kidney transplant, or if the patient appears toxic.

Patients who apply to the emergency department with kidney stones should be diagnosed quickly and should be reassured immediately. Meanwhile, differential diagnoses that can be fatal should not be overlooked.

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