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Minimizing the Cost of Treating Asymptomatic Ureterolithiasis

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Article Info

Abstract

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Introduction

The management of patients with ureterolithiasis who report resolution of their symptoms but do not recall passing the stone presents a clinical challenge. We sought to analyze the cost of differing management strategies for these patients.

Methods

We performed a cost minimization analysis using published efficacy data and Medicare reimbursement costs. We compared: a) up front ureteroscopy with planned lithotripsy; b) follow-up imaging to determine presence or absence of stone using computed tomography (CT), abdominal plain film (KUB), or ultrasound (US); or c) observation. We performed sensitivity analyses on the factors driving cost, which included the probability of stone passage and ultrasound sensitivity.

Results

Observation was associated with the lowest costs for patients likely to spontaneously pass their ureteral stone (>62%). Initial imaging with CT was the least costly approach for patients with an intermediate probability of stone passage (21-62%). When the sensitivity of US is modeled to be high (>79%), it surpasses CT scan as the least costly approach across a wide range of spontaneous passage rates. Ureteroscopy was associated with the lowest costs when the probability of spontaneous stone passage was low (<21%).

Conclusions

The probability of spontaneous passage of a ureteral stone can be used to optimize treatment strategies for patients. Observation minimizes costs for patients with stones likely to pass spontaneously, whereas ureteroscopy minimizes costs for stones unlikely to pass. For ureteral stones with an intermediate probability of spontaneous passage, CT imaging to guide treatment is associated with the lowest estimated costs.

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Key of Definitions for Abbreviations:

[CT \(Computed Tomography\)](#), [KUB \(Abdominal Plain film\)](#), [US \(Ultrasound\)](#), [AUA \(American Urological Association\)](#)

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