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FRAGMENTS LEFT BY LITHOTRIPSY CAN SEED NEW KIDNEY STONES.

DALLAS--Kidney-stone researchers at The University of Texas Southwestern Medical Center at Dallas say stone fragments left following lithotripsy place a patient at higher risk for recurrent stone formation; however, appropriate medical therapy can sharply reduce this risk.

"Even though lithotripsy has dramatically improved the way we manage stones, it has no impact on their cause," said Dr. Glenn M. Preminger, associate professor of surgery in urology and chief of UT Southwestern's lithotripsy unit. "Unless we treat the cause, the patient will form new stones."

His findings will be delivered at the annual meeting of the American Urological Association in Washington, D.C., May 10-14 by UT Southwestern urology resident Dr. Joshua K. Fine. Fine recently won the Texas Urological Association's Harry M. Spence Resident Essay Prize.

The data is the product of an extended collaboration between Preminger and Dr. Charles Y.C. Pak, one of the world's leading authorities on metabolic stone disease. Pak, professor of internal medicine and holder of the Charles Pak Distinguished Chair in Mineral Metabolism at UT Southwestern, has identified 16 separate stone-forming disorders and developed drugs specifically designed to counteract them.

Kidney stones afflict about 350,000 Americans annually, most of them middle-aged men. The stones are painful crystals of calcium and other mineral salts deposited in the kidneys or ureters. Lithotripsy, first performed in Germany 12 years ago, has made it possible to eliminate stones

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without surgery in many cases. It employs shock waves generated outside the body to pulverize stones.

"The major advantage of this procedure is that in most cases it can be done on an outpatient basis," said Preminger. "Often the patient returns to work the same day."

A major drawback, however, has been the tendency of stone fragments to remain lodged in the kidneys and ureters. Since lithotripsy has no effect on the metabolic disease that causes stones to form in the first place, such fragments may serve as seeds for the formation of new stones. The UT Southwestern researchers found that even when the residual fragments were less than 5 millimeters in diameter--a size considered "clinically insignificant" by some practitioners--more than 60 percent increased in size without specific medical therapy, according to Preminger.

They studied 80 kidney-stone patients for up to six and one-half years following lithotripsy. Patients with residual fragments who were given drugs to correct their underlying metabolic disorders experienced an 81 percent reduction in the formation of new stones. This increased to 91 percent in the patients considered stone-free after lithotripsy.

Preminger, Pak and Fine conclude that surgeons should place greater emphasis on rendering patients stone-free, whether by lithotripsy or more invasive means. They also stressed the importance of appropriate metabolic evaluation and medical management, whether or not residual stone fragments are identified following lithotripsy.

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NOTE: The University of Texas Southwestern Medical Center at Dallas comprises Southwestern Medical School, Southwestern Graduate School of Biomedical Sciences, Southwestern Allied Health Sciences School, affiliated teaching hospitals and outpatient clinics.