ARTICLE: Ultrasound Versus Computerized Tomography for Evaluating Urolithiasis

PURPOSE:
This paper sought to determine whether ultrasound was equivocal to CT scan (now considered the gold standard) for diagnosing urolithiasis and whether any changes found related to changes in management.

METHODS:
Prospective trial on 50 pediatric patients presenting to either urology clinic or the emergency department. Patients were suspected of having urolithiasis (although unclear as to why they were suspected of this as a significant portion of the patients were also noted to be asymptomatic at the time) and underwent both ultrasound and CT. US was compared to CT which was considered to be the gold standard test. If there was a difference in the radiologist's read of the imaging, the case was sent to a group of 8 urologists who independently decided whether the difference in diagnosis would make a difference in the management and outcome.

RESULTS:
Ultrasound was shown to be 76% sensitive when compared to CT. Four of the cases that were missed on ultrasound were considered to have had significant effects on the management and outcome according to the urologist's in the study. They state that other findings would have led practitioners to get further imaging in all of these cases and the authors argue that ultrasound is thus a safe modality to evaluate for the presence of urolithiasis (eg, ultrasound will either make the diagnosis or, in cases where ultrasound misses the diagnosis and that miss is considered to be important, there would have been other findings that would have led the physicians to make the diagnosis anyways).

IMPLICATIONS FOR PRACTICE:
This paper was agreed by all to not be a quality paper and also not be applicable to emergency practice. The main points of concern were that the patient population was not equivalent (many were patients at a urologic clinic and thus at high risk for stone formation, in fact some of the patients were asymptomatic at the time of evaluation calling into question how they had "suspected urolithiasis". Also the fact that these were pediatric patients (which are known to have a low rate of urolithiasis) calls into question the patient population. Almost all of the stones were renal stones, which have a very low incidence in the emergency department and also does not truly address whether ultrasound is capable of diagnosis urolithiasis. The paper does a very poor job at
explaining their results. For example, they provide a chart of the patients whose stones were missed by ultrasound, but for some reason this chart does not include the patients who the authors state would have had significant changes in the course of treatment had their stone actually been missed. The paper also does not address whether missing these cases would have changed actual outcome, only that the urologists state that they would have changed the way that they manage the patients. To summarize, the trial was poorly designed, included a very narrow and specific patient population that is not applicable to emergency medicine and does not demonstrate a difference in clinical outcomes which is of the most importance to us as practitioners.