Nature Reviews Urology **12**, 5 (2015); published online 11 November 2014; doi:10.1038/nrurol.2014.313

STONES

Stones of any composition increase renal papillary density

Increased renal papillary density, as detected by CT scanning, is unaffected by stone composition in patients with urolithiasis, according to new research published in the *Journal of Urology*.

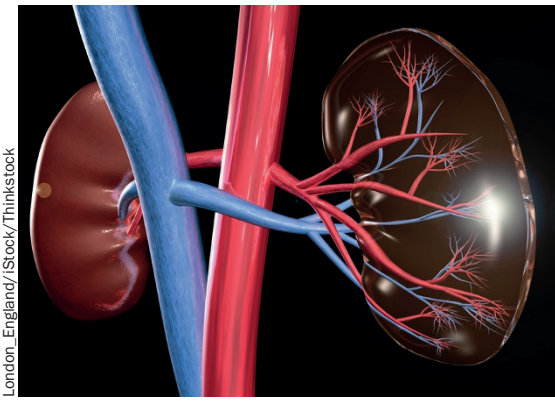
In a retrospective study, Sameer Deshmukh and colleagues reviewed CT images of 72 patients who had a single calyceal stone of known composition in one kidney only. Density of single renal calyces was evaluated using the Hounsfield scale and compared with that of control patients. Kidney stones with a range of different primary compositions including carbonate apatite, calcium oxalate monohydrate or dihydrate, struvite, uric acid, brushite or cystine were included in the analysis. A minimum composition criteria of 80% was applied for all stones except struvite stones (30%).

A significant increase in papillary density was detected in all patients with kidney stones compared with patients without a kidney stone. However, statistical comparisons of papillary density between patients with stones of different compositions revealed no significant differences between any of the groups.

Non-stone-bearing calyces within the same kidney or the contralateral kidney of patients with a kidney stone also had greater papillary density than those of non-stone-bearing individuals.

These data suggest that the composition of a kidney stone has no significant effect on renal papillary density. Also, non-stone-bearing calyces in patients with at least one kidney stone had a similar density to stone-bearing calyces. This finding suggests that changes in the renal papillae prior to stone formation lead to the observed changes in papillary density.

The authors conclude that greater sample sizes are required to accurately and conclusively compare the effects of stone composition on papillary density, and that their findings alone should not encourage routine CT scanning of patients to predict future risk of kidney stone formation. However, given the already widespread use of CT scanning, valuable information on risk of stone formation could be obtained from retrospective evaluation of CT images at virtually no further cost to the healthcare provider.



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Original article Deshmukh, S. *et al.* Hounsfield density of renal papillae in stone formers: analysis based on stone composition. *J. Urol.* doi:10.1016/j.juro.2014.10.089