

CT Urography Shines in Specificity for Bladder Ca

BY BRUCE K. DIXON
Chicago Bureau

CHICAGO — CT urography is a promising technique for the detection of bladder cancer and may eliminate the need for cystoscopy in selected patients, according to a study presented at the annual meeting of the Radiological Society of North America.

The new data, which give CT urography (CTU) high marks for specificity and negative predictive value in patients at

risk for bladder cancer, are a step in that direction, said Dr. Cheryl A. Sadow, who is with the department of radiology at Brigham and Women's Hospital in Boston.

"Bladder cancer is the most common malignancy of the urinary tract. Currently, cystoscopy is the gold standard for detection. CT urography offers a comprehensive evaluation of the kidneys, urinary tract, and bladder; however, its role as a primary imaging tool for the detection of bladder cancer has yet to be established," she said.

The researchers retrospectively reviewed the results of all CTU performed at Brigham and Women's Hospital over a 5-year period. Included in the study were patients who had been referred for hematuria or for a history of urothelial cancer, and who also had a cystoscopy within 6 months of the CTU for correlation, Dr. Sadow said. A total of 838 CT urograms obtained for these indications had cystoscopic correlation.

"For CTUs, any bladder lesion that was

interpreted as suspicious for malignancy was considered positive, and any other bladder abnormality or normal bladder [was] called negative. In the reading of cystoscopy reports, any lesion that was biopsied or resected was called positive, whereas if no lesion was detected, the cystoscopy was called negative," she said.

Performance characteristics of sensitivity, specificity, and positive and negative predictive values were calculated for CTU and cystoscopy procedures using concordant negative results between the two tests or pathology.

A total of 149 cancers were found in the 838 cases assessed. There were 32 false-negative and 40 false-positive CT urograms. Overall, the sensitivity of CTU was less than that of cystoscopy (79% vs.

CT urography offers a comprehensive evaluation, but its role as a primary imaging tool for the detection of bladder cancer has yet to be established.

95%), but the exam's specificity was 94% vs. 92% for the more invasive procedure, Dr. Sadow explained. The positive predictive value was low for both, at 75% and 72%, respectively, while the negative predictive values were

very high, at 95% and 99%.

When the data were subdivided by inclusion criteria, they revealed that 680 of the 838 CTU exams were performed for the indication of hematuria. In this group, 68 cancers were detected.

"Once again, sensitivity is less for CTU and the positive predictive value is low for both. However, the specificity increases to 96% in CTU, which is slightly better than for cystoscopy, and the negative predictive value for CTU increases to 98%," Dr. Sadow said, adding that high negative predictive value allows referring physicians to feel confident that a negative CTU excludes bladder cancer in 98% of patients.

Among those referred for a history of urothelial cancer, sensitivity remained relatively low and specificity dropped significantly for CTU. The investigators suspect that bladder distortion and wall thickening from prior surgical interventions and other intravesical treatments may account in part for the decreased specificity in this cohort of patients.

Disease prevalence was 18% overall, 10% in the hematuria group, and 50% in the urothelial cancer group. As the prevalence of disease increases, the negative predictive value of the test decreases, and disease prevalence rises with age, she said.

"CT urography has such a high specificity and negative predictive value in the setting of hematuria that it may obviate the need for cystoscopy in this patient population. However, due to the relatively low sensitivity of the test, compared with cystoscopy, patients at a very high risk for bladder cancer, such as those with a history of urothelial cancer, should continue to be evaluated with cystoscopy," Dr. Sadow concluded. ■

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