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The Accuracy of Portable Ultrasound Scanning in the Measurement of Residual Urine Volume.

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Abstract

PURPOSE: We assessed the accuracy of a portable ultrasound device (BladderScan(TM) BVI 3000) used to measure the postvoid residual urine volume (PVR). **MATERIALS AND METHODS:** We prospectively measured the volume of residual urine in 160 patients with lower urinary tract symptoms between August 2000 and April 2001. After voiding, PVR measurements were performed immediately using ultrasound bladder scanning, followed by Nelaton catheterization, with the patient was in the supine position, and compared the results of the two techniques. **RESULTS:** The ultrasound bladder scanning correlated well with the catheterization for measuring the PVR ($r=0.946$). The ultrasound bladder scanning had a sensitivity and specificity of 95.4 and 100%, respectively, in detecting a $PVR \geq 100$ ml, and 83.4 and 91.5%, respectively, in cases where the PVR was less than 50ml. A multiple regression analysis, and a two sample t-test, showed that the difference was not related to: age, sex, weight, height, body mass index (BMI) or related diseases ($p>0.05$). Age, weight, height, BMI were not significant variables when comparing the sexes ($p>0.05$). There was a significant difference in patient's satisfaction and the required time of the procedure between bladder scanning and catheterization ($p<0.01$). **CONCLUSIONS:** Portable ultrasound bladder scanning is quick, easy to use, non-invasive, readily repeatable, and specific for determining the PVR. Therefore, portable ultrasound bladder scanning can be used as an alternative to catheterization in the determination of residual urine volume.

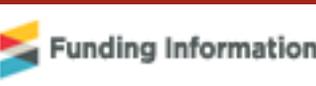
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