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JOURNAL ARTICLE

Prostatic growth rate determined from MRI data: age-related longitudinal changes

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Men with prostatic enlargement are at highest risk of developing symptomatic lower urinary tract symptoms (LUTS) and related outcomes, such as acute urinary retention. The study of prostatic growth rate can identify the age range at which prostate growth peaks. Evaluation of the natural course of prostate growth requires repeated intraindividual volume measurements at time intervals sufficient to document growth. Our objective was to examine age-stratified prostate growth rates from men taking part in a longitudinal study of aging using magnetic resonance imaging (MRI) of the prostate. Sixty-four men (ages 30-71 years) enrolled in the Baltimore Longitudinal Study of Aging (BLSA) who had T2 pelvic MRIs taken approximately every 2 years were studied. Men were age stratified into four groups: <45, 45-55, 56-65, and >65 years old. Whole prostate and central gland (anatomically referred to as the transition zone) volumes were determined from the MRI images by a semi-automated image analysis program. Peripheral gland volumes were calculated as the difference between whole prostate and central gland volumes. Growth rates (cc per year) were calculated as change in volume divided by the time interval. On the basis of measurements from the T2 images (n = 128), we observed a linear trend between prostate volume and age. The overall prostate growth rate was 2.36 +/- 3.52 cc per year. Age-stratified growth rates revealed that prostate growth increased with age, peaked at 4.15 +/- 4.98 cc/year for the 56-65-year-old age group and then declined rapidly for the older-aged men. The central gland growth rates followed a trend similar to total prostate volume. These data suggest that there is an age-related increase in prostate growth rate that peaks in men ages 56-65 and then declines. Identification of this trend in prostate growth may aid physicians in targeting men for early diagnosis of LUTS and for possible early intervention. Future studies with a larger sample size are necessary to substantiate these findings.

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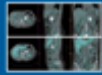
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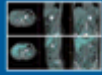


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