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[Urology](#). 2001 Dec;58(6):994-8.**Diagnostic significance of digital rectal examination and transrectal ultrasonography in men with prostate-specific antigen levels of 4 NG/ML or less.**Yamamoto T¹, Ito K, Ohi M, Kubota Y, Suzuki K, Fukabori Y, Kurokawa K, Yamanaka H.

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Abstract

OBJECTIVES: To investigate the usefulness of digital rectal examination (DRE) and transrectal ultrasonography (TRUS) for prostate cancer diagnosis and to propose a diagnostic algorithm for individual-based cancer screening in subjects with prostate-specific antigen (PSA) levels of 4.0 ng/mL or less.

METHODS: Between January 1992 and March 2000, 129 subjects with PSA levels of 4.0 or less and abnormal findings on DRE or TRUS underwent prostate biopsy. The subjects were divided into four groups according to the PSA range: 0 to 0.9 ng/mL, 1.0 to 1.9 ng/mL, 2.0 to 2.9 ng/mL, and 3.0 to 4.0 ng/mL. The reliability of the DRE and TRUS and the clinicopathologic features of prostate cancer were investigated among these four groups.

RESULTS: Of the 129 subjects, 17 (13.2%) patients with prostate cancer were diagnosed. The detection rate was 2.2% (1 of 45), 0% (0 of 27), 20.6% (7 of 34), and 39.1% (9 of 23) in subjects with PSA levels of less than 1.0 ng/mL, 1.0 to 1.9 ng/mL, 2.0 to 2.9 ng/mL, and 3.0 to 4.0 ng/mL, respectively. The proportion of patients with Stage II, III, and IV was 58.8%, 41.2%, and 0%, respectively. The percentage with Gleason scores of 8 to 10 was 17.6%. The detection rate of abnormal findings on DRE and TRUS was 14.4% (13 of 90) and 9.5% (7 of 74), respectively. Adding TRUS to DRE in the screening program of subjects with PSA levels of 2.0 to 4.0 ng/mL, increased the detection rate of prostate cancer to 30.8% (4 of 13).

CONCLUSIONS: Routine prostate biopsy should not be undertaken except for highly suspicious DRE findings in subjects with PSA levels less than 2.0 ng/mL. The additional use of TRUS in subjects with PSA levels of 2.0 to 4.0 ng/mL would improve the sensitivity of prostate cancer detection. The diagnostic algorithm proposed in the present study is useful as a screening method for prostate cancer in subjects with PSA levels of 4.0 ng/mL or less.

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