Basic Research

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Re: Biomarkers in Active Surveillance

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EDITORIAL COMMENT

Prostate cancer (PCa) is a common health problem and the majority of PCa's are accepted as an innocent cancer. Active surveillance (AS) is an approach for management of low-risk PCa. However, there remain challenges in patient selection and monitoring protocols for AS. Actual methods for AS are highly invasive, expensive or inadequate. For these reasons, there is substantial interest in identifying markers. In this review, the authors summarized the evidence on serum, urine and tissue markers in AS. Serum markers include prostate specific-antigen (PSA) kinetics during AS as PSA doubling time, PSA velocity, PSA density or the percent free PSA. Two new PSA-based blood tests incorporating free PSA are the Prostate Health Index and 4K score. Several urinary markers, such as PCa antigen 3 and the *TMPRSS2: ERG* gene fusion or DNA methylation patterns of urinary sediment, have also been explored for use in PCa detection and management. In addition to these methods, multiple tissue-based markers are available including the Oncotype DX Genomic Prostate Score, Prolaris Cell Cycle Progression Score, GenomeDx Decipher Score, etc. and immunohistochemical staining for inactivation of the *PTEN* gene. Very few markers have long-term results available for patients during AS. In addition to the actual AS protocols as PSA, digital rectal examination, rebiopsy or mp-magnetic resonance imaging, there is not yet well described unique protocol for patients under AS. In the near future, we believe that more accurate protocols will be suggested for patients under AS.

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