The Health Technology Report Series has been developed by the Institute of Family Medicine and Public Health, University of Tartu.

Early detection of prostate cancer

Summary

Prostate cancer is the most common cancer among men and is one of the top three causes of cancer mortality. In men with localized disease, cancer-specific survival rates exceed 95% at 5-year follow-up regardless of the therapeutic approach, whereas in metastatic disease, the 5year survival is less than 30%.

Objectives: The aim of this health technology assessment was to analyse the health benefits and risks of using prostata specific antigen (PSA) and new biomarkres in screening of prostate cancer, and the budget impact of the interventions from the perspective of Estonian Health Insurance Fund.

Methods: A systematic review of studies on effectiveness of targeted screening of prostate cancer was conducted. In parallel, a systematic review of cost-effectiveness studies was conducted about the use of PSA and other tests in screening for prostate cancer.

Results: Screening based on multiple PSA testing rounds reduces cancer-specific mortality in asymptomatic men aged between 55 and 69 yr. There is no evidence about the usefulness of other potential biomarkers of prostate cancer in the context of screening.

Recent modeling efforts that accounted for differences in the study design of major clinical trials on prostate cancer screening established a relative risk reduction in prostate cancer mortality ranging between 25% and 30%. The results of two meta-analyses of randomized studies assessing the role of PSA screening demonstrate that, when considering studies at a low risk of bias, PSA screening leads to a small but significant reduction in the risk of dying from prostate cancer over 10 years.

PSA should be considered in the context of other clinical characteristics such as age, family history, ethnicity, digital rectal examination and prostate volume. Several tools such as Rotterdam ERSPC risk calculators account for these parameters. The use of risk stratification tools may allow up to 34% of men to safely avoid prostate biopsy and, diagnosis of up to 20% of insignificant prostate cancer could be avoided (at the cost of missing only 2% significant disease). These models have been updated recently to include information obtained at magnetic resonance imaging.

Conclusions: Implementation of prostate-specific antigen (PSA)-based screening should be considered at a population level. Men at risk of prostate cancer should have a baseline PSA blood test. The level of this test, combined with family history, ethnicity, and other factors, can be used to determine subsequent follow-up. Magnetic resonance imaging scans should be used to determine which men need biopsy and how any cancers should be treated.

Citation: Veskimäe P, Žarkovski M, Kivi M, Kiivet R. *Eesnäärmevähi varane avastamine*. TTH49. Tartu Ülikooli peremeditsiini ja rahvatervishoiu instituut; 2020.