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Argument for prostate cancer screening in populations of African-Caribbean origin

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Abstract

The high prevalence, incidence and mortality rates of prostate cancer in Tobago would appear to strongly indicate that screening of this population would be justified and could positively impact on mortality. We consider our approach to be consonant with the recommendations of the EAU (Heidenreich A et al, 2013) and the findings of Hugosson et al, 2014)

Keywords

Afro-Caribbean; prostate cancer; screening; mortality

Comment

The justification for prostate cancer screening for the detection of prostate cancer cases, and for reducing prostate cancer mortality, appears now much stronger for populations of African-Caribbean origin: populations with high prevalence, incidence and mortality prostate cancer rates. Data from populations with low prevalence, incidence and mortality prostate cancer rates, such as the USA and Europe, suggested that screening was not of value though the very recent report from Europe suggests that prostate screening in that setting saves lives (Hugosson et al 2014)

Details of our methodology have previously been recorded (Patrick et al, BJUI 2010). From 1997 to the present, the Tobago Health Studies Unit has collaborated with the Graduate School of Public Health of the University of Pittsburgh on a prostate cancer screening study

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Conflicts of Interest

None disclosed.

in the Caribbean island of Tobago The population of Tobago is 95% African. The male population aged 40–79 years numbered 5121 in the 1990 Census. In the population-based recruitment of approximately 60% of age-eligible men, if the serum prostate specific antigen measurement was >4 ng/ml or there was suspicious digital rectal examination, then an ultrasound-guided sextant biopsy was performed. Men were screened up to three times between 1997–2007.

Prostate cancer was diagnosed in 42% (342/814) of the biopsied men. The age-specific rate of screening detected prostate cancer among Tobago men of age 40–49 was 1%, of age 50–59, 8%, of age 60–69, 21% and of age 70–79, 29%. Overall, screening detected prevalence of prostate cancer in Tobago was 17% (328/1947, 95% CI 14.9, 18.2) in men across the 50–79 year age-group and 11% (342/3089, 95% CI 10.2, 11.8) in men across the 40–79 year age-group. The prevalence in Tobago is higher than white populations of the USA for men aged >50 years. The distribution of Gleason scores 5, 6, 7, 8, 9, and 10 was 1%, 51%, 35%, 6%, 6%, 0%, respectively.

Among Caucasians in the Schroeder 2009 ESRPC trial, with a core group of 55–69 years, the positive predictive value of PSA ≥ 4.0 ng/ml was 24.1%, whereas among 385 Tobago men of age 55–69 years, the positive predictive value was 55%. In this age group, Gleason scores of 7 and over were found in 49% of screened Tobago men, compared with 28% in the ESRPC trial screened group and 45% in their control group.

In the second wave of prostate cancer screening in Tobago, after a median of 2.0 years, screening detected incident prostate cancer was diagnosed in 67 of 1447 (4.6%) of screened men ranging from 4 of 447 (0.9%) men aged 40–49 to 20 of 182 (11.0%) men aged 70–79, (unpublished data), higher than the rates for white Americans.

Since the intent was surgery for cure, criteria for surgery were Gleason score ≤ 7 , serum PSA < 10 , and no evidence of metastases on nuclear bone scan. Only fit men were selected.

92 radical prostatectomies have been performed. Our surgery outcomes are comparable with other International series.

During a mean mortality follow-up of 11.0 years (median 12.0), 29 deaths were attributed to prostate cancer (29/280, 10.4% of men with prostate cancer, 2.6% of 1101 screened men). Among ESRPC men aged 55–69 years, at randomization, 299 deaths were attributed to prostate cancer (299/5990, 5.0% of men with prostate cancer, 0.4% of 72,890 men in screening arm) after mean follow-up of 10.5 years (median 11.0). (Schroder, 2012)

Studies in other African diaspora populations, have also found high prostate cancer risk. In a study in London, African-Caribbean men had a 3 times greater risk of prostate cancer than European men. The SEER data from the USA similarly showed a higher incidence and mortality in African Americans than in other ethnic groups.

WHO data indicate that prostate cancer is the sixth leading cause of death from cancer among men worldwide. Prostate cancer is the leading cause of death from cancer in Tobago.

WHO age-adjusted prostate cancer mortality rates for Trinidad and Tobago (WHO, Global burden of disease, 2004) are higher than those of USA and Europe. While WHO data for Trinidad and Tobago are available, that for Tobago is not. Data for Trinidad and Tobago, high as it is, is recorded in a population 45 % African, while the population of Tobago is 95% African. Prostate cancer mortality rates for Tobago, are thus likely to be higher than that of Trinidad and Tobago. Data from Barbados of similar ethnic make up as Tobago (Hennis AJM et al, 2011) indicates that incidence and mortality rates from that island were higher than for white Americans. Our preliminary mortality results are strikingly similar to that of Barbados.

Our population, unlike that of the European study and that of the USA clinical trials, was of an African population of the Caribbean with a high prevalence and high incidence of prostate cancer with a high mortality rate, in a setting where no previous screening had been done.

The high prevalence, incidence and mortality rates in Tobago would appear to strongly indicate that screening of this population would be justified and could positively impact on mortality. The EAU guidelines have also come down against routine screening but have recommended in a low/medium risk setting that all persons should have at age 40–45 years a baseline PSA. Our median PSA levels and the positive predictive value of the PSA, are significantly higher than those of the USA and Europe. The numbers are too small to make any conclusions regarding prostate cancer mortality in the surgery group (n=3). We consider our approach of screening of our total male population of age 40 – 69 years to be consonant with the recommendations of the EAU (Heidenreich A et al, 2013) and the findings of Hugosson. et al, 2014.

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