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LETTERS

PROSTATE CANCER SCREENING

What is mortality denominator?

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Sandblom and colleagues state: "In a Cox proportional hazard analysis, the hazard ratio for death from prostate cancer was 1.23 (0.94 to 1.62; P=0.13) and 1.58 (1.06 to 2.36; P=0.024) after adjustment for age at start of the study."[1]

Does the hazard ratio of 1.23 mean that being assigned to the uninvited group increases prostate cancer mortality by 23% compared with the invited group, or that only those in the uninvited group with prostate cancer have 23% more deaths than the invited group with prostate cancer? In other words, what is the denominator?

Is the hazard ratio of 1.23 unadjusted for age at assignment while 1.58 was adjusted for age? Was adjustment for age pre-specified before the investigators analysed their death rates or was this post hoc analysis? If post hoc analysis, how many mortality risk factors were tested for an effect on case rate mortality? If the assignment to group was based on date of birth, the age distributions of the two groups should be nearly the same. Why then was the Cox proportional hazard analysis adjusted for age at the start of the study?

Screening detects more slow growing or comparatively benign cancers such that case rate mortality with prostate cancers alone in the denominator will favour screening over no screening with fewer slow growing prostate cancers. Moreover, screening symptom-free men is intended to detect at an earlier stage before metastasis. Detecting any cancer at an earlier stage prolongs survival after diagnosis even if no treatment is given to any case in either group. Therefore both prostate cancer mortality and all cause mortality should be compared by assigned group beginning on the day of assignment, not day of diagnosis.

Competing interests: None declared.

1 Sandblom G, Varenhorst E, Rosell J, Löfman O, Carlsson P. Randomised prostate cancer screening trial: 20 year follow-up. *BMJ* 2011;342:d1539. (31 March.)

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