microcancer) is present in over 6% of autopsy specimens (Lang *et al.*, 1988; Roti *et al.*, 2008), it would be reasonable to hypothesize that exposure to diagnostic radiography is a confounder and potentially reflects the influence of other diseases (requiring increased diagnostic radiography).

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Conflicts of interest

There are no conflicts of interest.

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Finasteride for postmenopausal breast cancer prevention

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A recent report has indicated that exemestane could be one part of the chemopreventive spectrum for estrogen-receptor-positive breast cancer (Dunn *et al.*, 2013). Finasteride is another drug that might be used for the same purpose.

Finasteride is a 5α-reductase inhibitor for the treatment of benign prostatic hypertrophy and male pattern baldness. 5α-Reductase is an enzyme that converts testosterone to the highly active dihydrotestosterone. Finasteride can prevent prostate cancer (Lucia *et al.*, 2007).

Finasteride has been used in women to reduce hirsutism and acne (Fruzzetti *et al.*, 1994; Kohler *et al.*, 2007). It significantly decreases dihydrotestosterone levels and hair growth in hirsute women or in women with acne, without negatively affecting gonadotropin secretion.

Increased concentrations of endogenous sex steroids, both estrogens and androgens, are associated with an increased risk of estrogen receptor+/progesterone receptor+ breast cancers in postmenopausal women (Missmer *et al.*, 2004). Moreover, hirsutism and acne increase the risk of female breast cancer (Baron *et al.*, 2001).

Finasteride induces gynecomastia. Gynecomastia is a well-documented, common complication of finasteride therapy in men (Volpi *et al.*, 1995; Green *et al.*, 1996; Carlin *et al.*, 1997). Moreover, gynecomastia doubles the risk of male breast cancer (Casagrande *et al.*, 1988). However, the overall incidence of male breast cancer in clinical trials for 5 mg finasteride was not significantly increased – 7.8/100 000 patient-years for patients exposed to more than 1 year of treatment versus 8/100 000 patient-years for patients not exposed to the drug – despite the gynecomastia produced by finasteride. As of November 2009, there were only 50 case reports worldwide of male breast cancer in benign prostatic hypertrophy patients aged between 54 and 88 years (mean age of 71 years) who received 5 mg finasteride, despite its very widespread use and the fact that finasteride became generic in 2006 (Shenoy and Prabhakar, 2010). In the Prostate Cancer Prevention Trial, with 141 009 person-years of follow-up, there were two cases of male breast cancer, one in the finasteride treatment group and another in the control group (Walsh, 2013). These data suggest that finasteride may reduce the risk of male breast cancer.

Male breast cancer most closely resembles postmenopausal female breast cancer. For example, low nuclear grade, and estrogen and progesterone receptor positivity are more common among men and postmenopausal women than among premenopausal women (Anderson *et al.*, 2004). Therefore, as 5α-reductase inhibitors, such as finasteride, can prevent male breast cancer, they might be useful in preventing breast cancer in postmenopausal women.

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