

Table 2.41. Cohort studies of consumption of alcoholic beverages and breast cancer by receptor status

Reference, study location, period	Cohort description	Exposure assessment	Exposure categories	Relative risk (95% CI)	Relative risk (95% CI)	Adjustment factors	Comments
Visvanathan <i>et al.</i> (2007) CLUE II, Washington County, USA	Nested case-control study (cohort of 14 625 women recruited 1989; followed-up until 2002); 321 cases identified through cancer registries, matched to 313 non-malignant and alive controls, by age, race, freeze/thaw status, availability of food-frequency questionnaire, menopausal status	Self-administered questionnaire	<i>Alcohol status in last year</i> Non-drinker Drinker	<i>ER+</i> (44) 1.0 1.84 (0.75–4.51)	<i>ER-</i> (176) 1.0 1.47 (0.93–2.31)	Education, smoking, family history, age at menarche, age at first birth, breastfeeding, oral contraceptive use, hormone-replacement therapy use, body mass index	No significant difference by subtypes

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Zhang <i>et al.</i> (2007) Women's Health Study, US	Analytical cohort of 38 454 women recruited in 1992, aged 45 and older; followed-up until 2004; 1 484 self-reported cases (1 190 invasive, 294 in situ) verified through medical records; 1 101 had ER receptor status, and 1 085 cases had PR status	Self-administered questionnaire	<i>Intake in last year (g/d)</i> None 0.1–4.6 5–9.9 10–14.9 15–29.9 ≥ 30 p for trend per 10 g/d	<i>ER+/PR+ (804)</i> 1.0 1.0 (0.84–1.18) 0.96 (0.75–1.24) 1.29 (0.98–1.70) 1.23 (0.91–1.68) 1.39 (0.90–2.15) 0.02 1.11 (1.03–1.20) <i>ER+/PR- (125)</i> 1.0 1.13 (0.74–1.72) 1.21 (0.67–2.18) 1.01 (0.47–2.17) 1.39 (0.67–2.90) 0.69 (0.17–2.88) 0.97 1.00 (0.81–1.24)	<i>ER-/PR- (167)</i> 1.0 1.17 (0.82–1.67) 1.04 (0.60–1.78) 1.02 (0.52–2.01) 1.25 (0.63–2.47) 1.15 (0.41–3.19) 0.79 0.99 (0.82–1.20)	Age, randomized treatment assignment, age at menarche, age at first birth, parity, menopausal status, age at menopause, hormone-replacement therapy use, body mass index, family history, benign breast disease, physical activity, vitamin supplement use, energy intake	

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Chlebowski <i>et al.</i> (2007) Women's Health Initiative (multisite, US)	Analytical cohort of 147 916 women (83 348 from the observational study cohort; 64 568 from the randomized controlled trial cohort); recruited from 1991, aged 50–79 years; followed-up for 5 years; 3 236 invasive self-reported cases identified and verified with pathology records; 2 963 cases had receptor status	Self-administered questionnaire	<i>Alcohol intake (drinks/day)</i> ≤ 1 > 1 p for trend	<i>ER+</i> (2 409) 1.0 1.17 (1.02–1.33) < 0.001	<i>ER-</i> (458) 1.0 1.06 (0.75–1.49) 0.03	Age, race, family history, previous breast biopsies, age at menarche, age at menopause, parity, age at first birth, breastfeeding, smoking, body mass index, physical activity, hormone-replacement therapy use	Not significantly different

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Li <i>et al.</i> (2009b), USA, Kaiser Permanente	Analytical cohort of 70 033 women recruited 1978–1985; mean age 40.6 years; followed-up until 2004; 2 829 cases identified through cancer registry (1 287 with ER status and 1 254 with PR status)	Self-administered questionnaire	<i>Alcohol intake (drinks/day)</i> Never < 1 1–2 ≥ 3 p for trend Never < 1 1–2 ≥ 3 p for trend Never < 1 1–2 ≥ 3 p for trend Never < 1 1–2 ≥ 3	<i>ER+ (1 019)</i> 1.0 1.1 (0.9–1.4) 1.4 (1.1–1.7) 1.7 (1.2–2.3) < 0.01 <i>PR+ (808)</i> 1.0 1.1 (0.9–1.4) 1.2 (0.9–1.6) 1.6 (1.1–2.3) < 0.01 <i>ER+/PR+ (782)</i> 1.0 1.2 (0.9–1.5) 1.3 (1.0–1.7) 1.7 (1.2–2.5) < 0.01 <i>ER+/PR- (207)</i> 1.0 1.1 (0.7–1.7) 1.6 (0.9–2.6) 1.7 (0.9–3.4)	<i>ER- (268)</i> 1.0 1.1 (0.7–1.6) 0.8 (0.5–1.3) 0.8 (0.3–1.8) <i>PR- (446)</i> 1.0 1.1 (0.8–1.6) 1.2 (0.8–1.8) 1.2 (0.7–2.1) <i>ER-/PR- (236)</i> 1.0 1.1 (0.7–1.6) 0.9 (0.5–1.6) 0.7 (0.3–1.8) <i>ER-/PR+ (26)</i> 1.0 0.2 (0.1–1.0) - -	Age, race, education, body mass index, marital status, smoking, breast surgery, family history, parity	

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Setiawan <i>et al.</i> (2009), USA (Hawaii, Los Angeles), Multiethnic cohort	Analytical cohort of 84 427 women recruited 1993–96; aged 45–75 years; followed-up until 2004 (Hawaii) or 2005 (Los Angeles); 2 543 cases identified through cancer registries; all had receptor status)	Self-administered questionnaire	<i>Alcohol intake (drinks/day)</i> 0 < 2 ≥ 2 p for trend 0 < 2 ≥ 2 p for trend	<i>ER+/PR+</i> (1 672) 1.0 1.03 (0.92–1.15) 1.40 (1.14–1.72) 0.001 <i>ER+/PR-</i> (303) 1.0 1.17 (0.91–1.51) 1.42 (0.85–2.36) 0.22	<i>ER-/PR-</i> (491) 1.0 1.21 (0.99–1.48) 1.71 (1.19–2.46) 0.006	Age, year of recruitment, race, type of menopause, study centre, age at menarche, age at first birth, parity, body mass index, hormone replacement therapy use, family history	2 drinks/day equivalent to 24 g/d; no significant interaction between subtypes (<i>P</i> = 0.07); higher proportion of African-American women had were ER-/PR-; too few cases with ER-/PR+ tumours (77)
Lew <i>et al.</i> (2009), NIH-AARP Study	Analytical cohort of 184 418 women recruited 1995–2003; aged 50–71 years; follow-up for an average of 7 years; 5 461 cases identified through cancer registry (3 341 cases had receptor status)	Self-administered questionnaire	<i>Alcohol intake (g/d)</i> 0 0.1–5 5.1–10 10.1–20 20.1–35 > 35 Per drink/day P for trend 0 0.1–5 5.1–10 10.1–20 > 20	<i>ER+/PR+</i> (1 641) 1.0 1.07 (0.95–1.21) 1.13 (0.93–1.38) 1.07 (0.89–1.29) 1.34 (1.06–1.69) 1.46 (1.12–1.91) 1.05 (1.01–1.09) 0.003 <i>ER+/PR-</i> (336) 1.0 1.08 (0.83–1.42) 1.15 (0.74–1.78) 1.39 (0.96–2.02) 1.13 (0.73–1.77)	<i>ER-/PR-</i> (366) 1.0 1.01 (0.79–1.30) 1.12 (0.74–1.71) 1.28 (0.88–1.85) 1.21 (0.79–1.84) n/a 1.02 (0.93–1.11)	Age, race, height, body mass index, age at first birth, parity, family history, age at menopause, physical activity, smoking, oral contraceptive use, hormone-replacement therapy use, breast biopsies, folate intake, fat intake, energy intake	No significant difference between subtypes