

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) 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>	<i>ER+/PR+ (804)</i>	<i>ER-/PR- (167)</i>	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	
			None	1.0	1.0		
			0.1–4.6	1.0 (0.84–1.18)	1.17 (0.82–1.67)		
			5–9.9	0.96 (0.75–1.24)	1.04 (0.60–1.78)		
			10–14.9	1.29 (0.98–1.70)	1.02 (0.52–2.01)		
			15–29.9	1.23 (0.91–1.68)	1.25 (0.63–2.47)		
			≥ 30	1.39 (0.90–2.15)	1.15 (0.41–3.19)		
			p for trend	0.02	0.79		
			per 10 g/d	1.11 (1.03–1.20)	0.99 (0.82–1.20)		
				<i>ER+/PR- (125)</i>			
			None	1.0			
			0.1–4.6	1.13 (0.74–1.72)			
			5–9.9	1.21 (0.67–2.18)			
			10–14.9	1.01 (0.47–2.17)			
15–29.9	1.39 (0.67–2.90)						
≥ 30	0.69 (0.17–2.88)						
p for trend	0.97						
per 10 g/d	1.00 (0.81–1.24)						

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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	ER+ (2 409) 1.0 1.17 (1.02–1.33) < 0.001	ER- (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>				Age, race, education, body mass index, marital status, smoking, breast surgery, family history, parity
			Never	<i>ER+</i> (1 019)	<i>ER-</i> (268)		
			< 1	1.0	1.0		
			1–2	1.1 (0.9–1.4)	1.1 (0.7–1.6)		
			≥ 3	1.4 (1.1–1.7)	0.8 (0.5–1.3)		
			p for trend	1.7 (1.2–2.3)	0.8 (0.3–1.8)		
				< 0.01			
				<i>PR+</i> (808)	<i>PR-</i> (446)		
			Never	1.0	1.0		
			< 1	1.1 (0.9–1.4)	1.1 (0.8–1.6)		
			1–2	1.2 (0.9–1.6)	1.2 (0.8–1.8)		
			≥ 3	1.6 (1.1–2.3)	1.2 (0.7–2.1)		
p for trend	< 0.01						
	<i>ER+/PR+</i> (782)	<i>ER-/PR-</i> (236)					
Never	1.0	1.0					
< 1	1.2 (0.9–1.5)	1.1 (0.7–1.6)					
1–2	1.3 (1.0–1.7)	0.9 (0.5–1.6)					
≥ 3	1.7 (1.2–2.5)	0.7 (0.3–1.8)					
p for trend	< 0.01						
	<i>ER+/PR-</i> (207)	<i>ER-/PR+</i> (26)					
Never	1.0	1.0					
< 1	1.1 (0.7–1.7)	0.2 (0.1–1.0)					
1–2	1.6 (0.9–2.6)	-					
≥ 3	1.7 (0.9–3.4)	-					

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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>	<i>ER+/PR+</i> (1 672)	<i>ER-/PR-</i> (491)	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 ($P = 0.07$); higher proportion of African-American women had were ER-/PR-; too few cases with ER-/PR+ tumours (77)
			< 2	1.03 (0.92–1.15)	1.21 (0.99–1.48)		
			≥ 2	1.40 (1.14–1.72)	1.71 (1.19–2.46)		
			p for trend	0.001	0.006		
			0	1.0			
			< 2	1.17 (0.91–1.51)			
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>	<i>ER+/PR+</i> (1 641)	<i>ER-/PR-</i> (366)	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
			0	1.0	1.0		
			0.1–5	1.07 (0.95–1.21)	1.01 (0.79–1.30)		
			5.1–10	1.13 (0.93–1.38)	1.12 (0.74–1.71)		
			10.1–20	1.07 (0.89–1.29)	1.28 (0.88–1.85)		
			20.1–35	1.34 (1.06–1.69)	1.21 (0.79–1.84)		
			> 35	1.46 (1.12–1.91)	n/a		
			Per drink/day	1.05 (1.01–1.09)	1.02 (0.93–1.11)		
			P for trend	0.003			
			0	1.0			
0.1–5	1.08 (0.83–1.42)						
5.1–10	1.15 (0.74–1.78)						
10.1–20	1.39 (0.96–2.02)						
> 20	1.13 (0.73–1.77)						