

Table 2.10. Case-control studies on consumption of alcoholic beverages and cancer of the oesophagus

Reference, study location and period	Organ site (ICD code)	Characteristics of cases	Characteristics of controls	Exposure categories	No. of exposed cases	Relative risk (95% CI)	Adjustment for potential confounders	Comments
Vioque <i>et al.</i> (2008), Spain, 1995–99	Oesophagus	202 (187 men, 15 women), histologically confirmed; 160 (79.2%) squamous-cell carcinomas, 42 adenocarcinoma; Participation rate, 95.8%. Face-to-face interview	455 hospital patients (285 men, 170 women) with diseases not related a priori to tobacco and alcohol use and diet; frequency matched to cases by age, sex, and province; Participation rate, 99.6%. Face to face interview	All oesophageal cancers Alcohol consumption Never Former drinker Current pure ethanol intake 1–24 g/day 25–74 g/day ≥ 75 g/day <i>Years since quitting</i> Current drinker <5 yr ≥5 yr Only OSCC <i>Alcohol consumption</i> Never Former drinker Current pure ethanol intake 1–24 g/day 25–74 g/day ≥ 75 g/day P for trend <i>Years since quitting</i> Current drinker <5 yr ≥5 yr	16 38 27 45 75 148 16 22 6 31 12 38 72 123 14 17	1.00 5.40 (2.43–12.00) 1.16 (0.54–2.49) 2.89 (1.29–6.48) 7.65 (3.16–18.49) 1.00 3.60 (1.34–9.69) 1.71 (0.86–3.41) 1.00 16.03 (5.34–48.07) 1.71 (0.56–5.20) 8.02 (2.64–24.40) 23.20 (7.19–74.90) <0.00001 1.00 5.89 (2.01–17.25) 1.70 (0.79–3.66)	Sex, age, education level, province, tobacco smoking, energy-adjusted intake of fruit and vegetable, energy intake	Too few cases to examine beverage type reliably. Increasing risk with duration of drinking, no association with age at starting to drink. Risk estimates higher if the analysis included squamous cell carcinomas only.

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Pandeya <i>et al.</i> (2009) Australia	Oesophagus or oesophagogastric junction	From 2002-2005 oesophagus cancer patients were recruited through treatment centres or cancer registries; 70% participation rate. Self-completed questionnaire. In total, 365 adenocarcinomas, 426 oesophagogastric junction adenocarcinomas (OGJAC) and 303 squamous cell carcinomas.	Controls selected randomly from the Australian Electoral Roll frequency matched on age and residence. Females oversampled intentionally to accommodate an intentional ovarian cancer study. 51% response rate. Self-completed questionnaire.	<i>Average lifetime alcohol intake</i>	365		Adjusted for age, sex, body mass index 1 year ago, frequency of heartburn/acid reflux, aspirin use and smoking	At alcohol intakes below 170 g/week, no association with OSCC. Indications of a decreased risk of oesophageal cancer in low/moderate wine drinkers, but residual confounding could not be ruled out. No association between alcohol intake and OAC/OGJAC when stratified for smoking status. Similar associations found in men and women.	
				OAC					
				Never drinkers		1.00			
				<10g/week		0.73 (0.31-1.67)			
				10-69.9g		0.75 (0.43-1.30)			
				70.0-209.9g		0.71 (0.41-1.24)			
				210-419.9g		0.67 (0.37-1.21)			
				>420g		0.89 (0.42-1.89)			
				P for trend		0.92			
				OGJAC		426			
				Never drinkers		1.00			
				<10g/week		0.79 (0.39-1.63)			
10-69.9g	0.81 (0.50-1.33)								
70.0-209.9g	0.69 (0.42-1.14)								
210-419.9g	0.68 (0.40-1.17)								
>420g	0.83 (0.41-1.67)								
P for trend	0.38								
OSCC	303								
Never drinkers		1.00							
<10g/week		0.89 (0.45-1.78)							
10-69.9g		0.62 (0.37-1.04)							
70.0-209.9g		0.71 (0.41-1.22)							
210-419.9g		1.93 (1.08-3.45)							
>420g	4.67 (2.28-9.55)								
P for trend	<0.001								

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Pandeya <i>et al.</i> (2009) contd.				OSCC			Adjusted for age, sex, body mass index 1 year ago, frequency of heartburn/acid reflux and aspirin us	
				Never smokers	77			
				Never drinkers		1.0		
				<10g/week		0.50 (0.18-1.39)		
				10-69.9g		0.46 (0.23-0.95)		
				70.0-209.9g		0.78 (0.32-1.92)		
				210-419.9g		2.88 (1.04-7.97)		
				>420g		1.86 (0.19-18.11)		
				Former smokers	93			
				Never drinkers		1.0		
				<10g/week		4.13 (0.76-22.41)		
				10-69.9g		2.30 (0.49-10.80)		
				70.0-209.9g		1.41 (0.30-6.74)		
				210-419.9g		3.69 (0.77-17.66)		
				>420g		8.43 (1.59-44.80)		
				Current smokers	132			
				Never drinkers		1.0		
<10g/week		0.35 (0.03-4.28)						
10-69.9g		0.48 (0.11-2.09)						
70.0-209.9g		2.00 (0.50-7.98)						
210-419.9g		4.95 (1.08-22.66)						
>420g		21.9 (3.90-122.5)						

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Benedetti <i>et al.</i> (2009) Canada	Oesophagus	Males aged 35-70 years living in the Montreal area newly diagnosed at any Montreal-area hospital. Multiple cancer sites included. 78 oesophageal cancer cases. Population-based. Response rate for oesophageal cancer and several other cancer types combined was 82%. Face to face interview	Population controls randomly selected from electoral lists, area and age stratified to the distribution of all cancer sites. 507 controls in total. Response rate 72%, 13% were additionally excluded due to missing alcohol information. Face to face interview	Total alcohol intake				Adjusted for age, smoking status and duration, ethnicity, income, years of schooling and time since quitting alcohol. Additional adjustments for fruit and vegetable consumption in analyses for cumulative intake.	In the cumulative use and histological subtype analyses, 'never drinkers' was the reference.
				Never weekly	7	1.00			
				1-6 drinks/weekly	19	1.83 (0.7-4.5)			
				7+ drinks/weekly	52	2.97 (1.3-6.8)			
				Cumulative use among those with 7+ drinks/weekly					
				0-71 drink-years	7	1.09 (0.4-3.4)			
				72-179 drink-years	14	2.33 (0.9-6.1)			
				180+ drink-years	31	7.40 (3.0-18.4)			
				Any alcohol intake by histological subtype					
				OACC		6.1 (1.4-26.6)			
OAC		1.5 (0.4-5.7)							

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Lee <i>et al.</i> (2005) Taiwan 1996-2003	Oesophagus (ICD 9: 150)	513 cases (428 men, 45 women) aged 28-89 years, systematically recruited from 3 hospitals, 64.5% participation rate, histologically confirmed squamous cell. Face to face interview	Healthy hospital-based controls who attended for check-ups, matched by gender and age; 1-3 controls per case, 95.0% participation rate. Face to face interview	Never drinker	110	1.0	Sex, age, study hospital, education, consumption of vegetables and fruits, cumulative use of cigarettes and betel quid chewing	No difference according to age at starting of drinking (≤ 26 versus > 26 years)
				Former drinker	114	5.5 (3.6-8.6)		
				Current drinker	289	7.6 (5.2-11.1)		
				<i>P</i> for trend		<0.0001		
				<i>Years of drinking</i>				
				1-15	45	5.5 (3.1-9.9)		
				16-35	203	6.1 (4.1-9.2)		
				>35	155	8.6 (5.5-13.5)		
				<i>P</i> for trend		<0.0001		
				<i>Average alcohol intake (g/day)</i>				
				1-20	119	3.6 (2.4-5.4)		
				21-40	66	6.1 (3.6-10.3)		
				>40	218	19.5 (12.1-31.2)		
				<i>P</i> for trend		<0.0001		
				<i>Type of beverage</i>				
				Beer	186	5.9 (4.0-8.8)		
Wine	159	7.7 (5.0-11.8)						
Spirits	58	9.0 (5.0-16.3)						
<i>Years since quitting</i>								
current drinker	289	1.0						
1-5	66	1.3 (0.7-2.4)						
6-10	22	0.8 (0.4-1.8)						
>10	26	0.3 (0.1-0.6)						
never drinker	110	0.1 (0.1-0.2)						
<i>P</i> for trend		0.002						

ICD, international classification of disease; CI, confidence interval; OAC, oesophageal adenocarcinoma; OSCC, oesophageal squamous cell carcinoma