

Table 2.64. Case-control studies of consumption of alcoholic beverages and lymphomas

Reference, study location, period	Organ, site ICD- code	Characteristics of cases	Characteristics of controls	Exposure assessment	Exposure categories	No of cases/deaths	Relative risk (95% CI)	Adjustment factors	Comments	
Willett <i>et al.</i> (2007), United Kingdom, England Jan. 1998-Jul. 2003	ICD-O-3 HL: 9 650–9659, 9 663–9667	262 patients with lymphoma (HL), diagnosed between ages 16–69, recruited between 1998–2003, ascertained from hospital hematology departments	1137 people randomly selected from population registries; Matched to each lymphoma case on sex, date of birth, area of residence	Interview	<i>Frequency</i>			Age, sex		
					Never	20	1.3 (0.7–2.4)			
					1–5 times/year	23	1.1 (0.6–1.9)			
					1–2 times/month	46	1.4 (0.9–2.1)			
					1–2 times/week	100	1.0 (ref)			
					3–4 times/week	42	0.7 (0.5–1.1)			
					Most days	31	0.8 (0.5–1.3)			
					<i>Volume (units/day)</i>					
					Never	20	1.1 (0.6–2.1)		1 unit = 8 g ethanol	
					> 0–1	103	1.0 (ref)			
					> 1–2	76	0.8 (0.6–1.2)			
					> 2–4	40	0.9 (0.6–1.4)			
					> 4	23	0.6 (0.3–1.0)			
					<i>Units per occasion at least monthly</i>					
					Never	20	1.2 (0.6–2.2)			
< 8	159	1.0 (ref)								
> 8	83	0.8 (0.6–1.1)								
Deandrea <i>et al.</i> (2007), Italy Early 1990s	HL, NHL	604 subjects, aged 17–79, median 58 years diagnoses histologically confirmed; HL: 158, NHL: 446	1295 patients, aged 17–79, median 57 years, admitted to hospitals in the same catchment areas for acute, nonneoplastic, nonimmunologic, nondigestive tract diseases	Interviews at hospitals, structured questionnaire	Total alcohol consumption (drinks/day)					
					<i>HL</i>					
					0	33	1.00 (ref)			
					1–2	59	0.85 (0.52–1.37)			
					3–4	29	0.88 (0.49–1.59)			
					≥ 5	37	0.66 (0.36–1.23)			
					<i>NHL</i>					
					0	68	1.00 (ref)			
					1–2	157	0.91 (0.65–1.27)			
					3–4	87	0.93 (0.62–1.39)			
≥ 5	134	0.91 (0.60–1.38)								

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Casey <i>et al.</i> (2007), France MultiCentre study : Dijon, Amiens, Montpellier April 2000-June 2003	ICD-O-3 B-cell NHL (DLBCL: 9680, 9684, 9687, 9826; FL: 9690, 9691, 9695, 9698; MM: 9731, 9732 ; CLL: 9823, 9670); NOS (9591); precursor B-cell (9728, 9836); HL (9650, 9652, 9663, 9665, 9667); T-cell NHL (9700, 9702, 9 705)	298 patients older than 17 years, identified at hospitals in three French areas DLBCL: 55, FL: 34, MM: 43, CLL: 65, NOS/ precursor B-cell: 15, HL: 37, T-cell NHL: 16	276 patients hospitalized in the same hospitals as cases, not in the cancers units, hepatogastroenterology, ophthalmology, infectious diseases, or orto-rhynolaryngology; Presented no cancer, infectious diseases, immunosuppression , asthma, hypertension.	Interviews at hospital, questionnaire	Alcohol intake <i>Drinker versus non-drinker</i>			Age, sex, socioeconomic level, centre	
					Lymphoid neoplasms	164/134	1.19 (0.80–1.76)		
					B-cell NHL	141/104	1.24 (0.82–1.89)		
					T-cell NHL	9/7	0.87 (0.26–2.96)		
					Drinking status <i>Former/current versus never</i>				
					Lymphoid neoplasms				
					Former	22	1.03 (0.52–2.04)		
					Current	140	1.26 (0.84–1.91)		
					B-cell NHL				
					Former	20	1.12 (0.55–2.29)		
					Current	120	1.34 (0.86–2.08)		
					T-cell NHL				
					Former	1	0.74 (0.08–7.16)		
					Current	8	0.92 (0.26–3.22)		
					Drinking duration <i>versus never</i>				
					Lymphoid neoplasms				
					≤ 33	68	1.11 (0.70–1.76)		
					> 33	94	1.39 (0.84–2.31)		
					B-cell NHL				
					≤ 33	51	1.22 (0.73–2.01)		
					> 33	89	1.40 (0.83–2.34)		
					T-cell NHL				
					≤ 33	5	1.02 (0.27–3.93)		
					> 33	4	0.71 (0.14–3.53)		

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Casey <i>et al.</i> (2007) (contd)					Age at first drink (years)				
					<i>versus never</i>				
					Lymphoid neoplasms				
					≤ 20	107	1.49 (0.94–2.36)		
					> 20	55	0.96 (0.59–1.56)		
					B-cell NHL				
					≤ 20	93	1.58 (0.97–2.57)		
					> 20	47	1.03 (0.62–1.71)		
					T-cell NHL				
					≤ 20	5	0.90 (0.21–3.77)		
					> 20	4	0.89 (0.22–3.58)		
					Daily intake (g/day)				
					<i>versus never</i>				
					Lymphoid neoplasms				
					≤ 20	88	1.28 (0.82–2.00)		
					> 20	70	1.20 (0.72–1.98)		
					B-cell NHL				
					≤ 20	74	1.35 (0.84–2.18)		
					> 20	63	1.30 (0.77–2.21)		
					T-cell NHL				
					≤ 20	6	1.19 (0.33–4.30)		
					> 20	3	0.55 (0.11–2.79)		

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Gorini <i>et al.</i> (2007), Italy 1990–1993 Multicentric study from hospitals in 11 areas of Italy: Varese, Forli, Siena, Latina, Ragusa, Imperia, Florence, Novara, Vercelli, Verona provinces + city of Turin	HL (ICD-9: 201)	363 patients of both genders, aged 20–74; identified from departments of haematology, general medicine, surgery, pathology in all hospitals from the study area, specialized hospitals outside the areas, and cancer registries; diagnosis histologically confirmed	1771 controls randomly selected from the population living in study areas; aged 20–74	Standardized questionnaire	<i>Alcohol consumption among non-smokers</i> Never Ever <i>Serving/week Total alcohol</i> Non-drinker 1–4 5–9 10–19 ≥ 20 <i>Wine</i> Non-wine drinker 1–4 5–9 10–14 ≥ 15	69 91 66 48 20 13 10 80 46 15 7 9	1.00 0.46 (0.30–0.69) 1.00 (ref) 0.51 (0.32–0.82) 0.39 (0.21–0.73) 0.26 (0.12–0.54) 0.34 (0.15–0.79) <i>P</i> trend = 0.17 1.00 (ref) 0.62 (0.38–0.99) 0.39 (0.20–0.78) 0.63 (0.24–1.69) 0.55 (0.21–1.41) <i>P</i> trend = 0.82	None Gender, age, area of residence, education level, smoking, type of interview + beer and liquor intake	No consistent pattern of association with drinking of beer or liquor

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Monnereau <i>et al.</i> (2008), France 2000–2004 MultiCentre study: main hospitals of Bordeaux, Brest, Caen, Lille, Nantes, Toulouse	ICD-O-3 HL(9650–9655/3, 9659/3, 9661–9665/3, 9667/3) NHL [DLBCL (9679/3, 9680/3); FL (9690/3, 9691/3, 9695/3, 9698/3); LL (9671/3, 9761/3); MALT (9699/3); splenic (9689/3); T-cell lymphoma (9702/3, 9705/3, 9714/3, 9729/3); mantle (9673/3); B-NHL (9591/3); Burkitt lymphoma (9687/3); B-lymphoblastic NHL (9728/3)]	548 newly diagnosed patients, between 2000–2004; from hospitals of Bordeaux, Brest, Caen, Lille, Nantes, Toulouse; aged 18–75 years; HL: 149, NHL: 399, DLBCL: 173, FL: 101, LL: 21, MALT: 17, splenic: 3, T-cell lymphoma: 25, mantle: 25, Other: B-NHL: 34, Burkitt L: 11, Unspecified : 22, precursor B-lymphoblastic NHL: 1	752 randomly selected patients with no history of hematological neoplasms, hospitalized in the same hospitals as cases, individually matched by centre, age, gender, residential area; a set of controls for each of case group : HL, NHL	Interview, standardized structured questionnaire, all under same conditions	Alcohol consumption			Gender, age, centre + potential confounders soc.-ec. status, education, history of autoimmune disease, family history of cancer and lymphoma, skin characteristics, BMI, farming activity	Ever drinkers = at least 1 drink per month regularly
					<i>NHL</i>				
					Never	97	1.0		
					Ever	302	0.7 (0.5–1.0)		
					<i>HL</i>				
					Never	45	1.0		
					Ever	104	0.5 (0.3–0.8)		
					<i>All LN</i>				
					Never	183	1.0		
					Ever	640	0.8 (0.6–1.0)		
					Type of alcohol (ever vs never)				
					<i>Wine</i>				
					NHL	273	1.0 (0.7–1.3)		
					HL	73	0.7 (0.4–1.0)		
					<i>Aperitif</i>				
					NHL	203	0.8 (0.6–1.0)		
					HL	75	0.6 (0.4–0.9)		
					Average number of drinks/week				
					<i>NHL</i>				
					0–3.7	62	0.6 (0.4–0.9)		
					3.7–10	97	0.9 (0.6–1.4)		
					10–21	73	0.7 (0.4–1.0)		
					> 21	68	0.6 (0.4–1.0)		
					<i>HL</i>				
					0–3.7	37	0.6 (0.4–1.1)		
					3.7–10	26	0.5 (0.3–0.9)		
					10–21	29	0.6 (0.3–1.1)		
					> 21	12	0.3 (0.1–0.6)		

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Benedetti <i>et al.</i> (2009), Canada, Montreal	Hodgkin's lymphoma Non-Hodgkin's lymphoma	HL: 42 male patients, 14,3% were proxy respondents; NHL : 190 male cases, 18,4% were proxy respondents; aged 35–70 years, living in Montreal area, newly diagnosed	Population controls randomly selected from electoral lists	Interview or self-administered questionnaire	HL			Age, smoking status, cigarette-year, respondent status, ethnicity, census track income, years of schooling, time since quitting	
					<i>Total alcohol consumption</i>		<i>Odds ratios</i>		
					Never weekly	8	1.00 (ref)		
					1–6 weekly	13	1.00 (0.39–2.60)		
					7+ weekly	21	1.12 (0.46–2.74)		
					<i>Beer</i>				
					Never weekly	12	1.00 (ref)		
					1–6 weekly	14	1.09 (0.48–2.51)		
					7+ weekly	16	1.23 (0.53–2.85)		
					<i>Wine</i>				
					Never weekly	23	1.00 (ref)		
					1–6 weekly	14	1.03 (0.49–2.17)		
					7+ weekly	5	0.65 (0.22–1.96)		
					<i>Spirits</i>				
					Never weekly	20	1.00 (ref)		
					1–6 weekly	16	0.98 (0.48–2.00)		
					7+ weekly	6	1.17 (0.43–3.16)		

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Benedetti <i>et al.</i> (2009) (contd)					NHL				
					<i>Total alcohol consumption</i>		<i>Odds ratios</i>		
					Never weekly	50	1.00 (ref)		
					1–6 weekly	63	0.83 (0.53–1.30)		
					7+ weekly	77	0.74 (0.48–1.14)		
					<i>Beer</i>				
					Never weekly	72	1.00 (ref)		
					1–6 weekly	67	0.99 (0.66–1.48)		
					7+ weekly	51	0.84 (0.54–1.31)		
					<i>Wine</i>				
					Never weekly	106	1.00 (ref)		
					1–6 weekly	62	1.03 (0.70–1.51)		
					7+ weekly	22	0.64 (0.37–1.14)		
					<i>Spirits</i>				
					Never weekly	91	1.00 (ref)		
					1–6 weekly	66	0.92 (0.63–1.34)		
					7+ weekly	33	1.31 (0.80–2.14)		

DLBCL, diffuse large B-cell lymphoma; FL, follicular lymphoma; CLL, chronic lymphocytic leukaemia; LL, lymphoplasmatic lymphoma/ Waldenstrom macroglobulinemia; MALT, marginal zone B-cell lymphoma malt type; NOS, not-otherwise specified; precursor B-cell, precursor B-cell lymphoblastic lymphoma/leukaemia; splenic, splenic marginal zone B-cell lymphoma; mantle, mantle-cell lymphoma; MM : multiple myeloma; LPS, lymphoid neoplasms; HCL, hairy cell leukaemia