

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 1 unit = 8 g ethanol
					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)		
					> 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				Age, sex, socioeconomic level, centre	
					<i>Drinker versus non-drinker</i>					
					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>				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
					Never	69	1.00			
					Ever	91	0.46 (0.30–0.69)			
					<i>Serving/week Total alcohol</i>					
					Non-drinker	66	1.00 (ref)			
					1–4	48	0.51 (0.32–0.82)			
					5–9	20	0.39 (0.21–0.73)			
					10–19	13	0.26 (0.12–0.54)			
					≥ 20	10	0.34 (0.15–0.79) <i>P</i> trend = 0.17			
					<i>Wine</i>					
Non-wine drinker	80	1.00 (ref)								
1–4	46	0.62 (0.38–0.99)								
5–9	15	0.39 (0.20–0.78)								
10–14	7	0.63 (0.24–1.69)								
≥ 15	9	0.55 (0.21–1.41) <i>P</i> trend = 0.82								

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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>Odds ratios</i>		
					<i>Total alcohol consumption</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