

Table 2.63. Cohort studies of consumption of alcoholic beverages and cancers of the lymphatic and haematopoietic system in the general population

Reference, location, name of study	Cohort description	Exposure assessment	Organ site (ICD code)	Exposure categories	No. of cases/deaths	Relative risk (95% CI)*	Adjustment factors	Comments	
Lim <i>et al.</i> , (2007), USA, The National Institutes of Health-former American Association of Retired Persons (NIH-AARP) Diet and Health Study	473984 participants with correct questionnaire and after exclusions; 285 079 men, 188 905 women; aged 50–71 years; linkage to cancer registry between 1995 and 2000: HL = 58 cases, NHL = 1381 cases; the comparison group was all the persons-years in the cohort (in person-years) without the cancers studied Alcohol consumers were compared to non-consumers.	Questionnaire between October 1995-February 1997	ICD-O-2; HL: 9650, 9652–9655, 9657–9667; NHL: 9590–9595, 9670–9675, 9677, 9680–9688, 9690–9698, 9700–9709, 9710–9717, 9761, 9764, 9800–9801, 9820–9828, 9850, 9940–9941, 9970	Total alcohol intake (drinks/week)				Age, sex, ethnicity, calories, smoking	Among wine drinkers; > 7 drinks per week, strongly decreased risk of CLL/SLL: 0.44, 95% CI (0.22–0.92), <i>P</i> trend = 0.03
				None	57	1.00 (ref)			
				0.1–7	16	0.73 (0.39–1.36)			
				7.1–14	26	0.76 (0.37–1.58)			
				<i>P</i> trend = 0.79		15			
				<i>P</i> trend drinkers = 0.97					
				NHL					
				None	1 350	1.00 (ref)			
				0.1–1.9	350	0.97 (0.85–1.11)			
				2–7	497	0.82 (0.69–0.97)			
				7.1–14	222	0.70 (0.58–0.86)			
				14.1–28	134	0.76 (0.59–0.97)			
				> 28	77	0.77 (0.59–1.00)			
				<i>P</i> trend = 0.008		70			
<i>P</i> trend drinkers = 0.02									
as B-cell lymphoma:									
<i>B-cell lymphoma</i>									
None	346	1.00 (ref)							
0.1–1.9	96	0.87 (0.66–1.13)							
2–7	122	0.77 (0.55–1.07)							
7.1–14	58	0.66 (0.44–0.97)							
> 14.1	35	0.61 (0.41–0.92)							
<i>P</i> trend = 0.02		35							
<i>P</i> trend drinkers = 0.04									

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Lim <i>et al.</i> , (2007) (contd)			Follicular lymphoma: 9690–9693, 9695–9698,	<i>Follicular lymphoma</i>	None	257	1.00 (ref)				
				0.1–1.9	68	1.02 (0.75–1.38)					
				2–7	102	0.77 (0.52–1.15)					
				7.1–14	38	0.70 (0.43–1.13)					
				> 14.1	23	0.83 (0.51–1.32)					
				<i>P</i> trend = 0.26	26						
						<i>P</i> trend drinkers = 0.33					
						CLL: 9823, SLL: 9670,	<i>CLL/SLL</i>	None	237	1.00 (ref)	
						0.1–1.9	66	0.83 (0.60–1.15)			
						2–7	78	0.86 (0.59–1.27)			
						7.1–14	44	0.65 (0.41–1.05)			
						> 14.1	24	0.65 (0.40–1.05)			
						<i>P</i> trend = 0.10	25				
						<i>P</i> trend drinkers = 0.15					
						T-cell lymphoma: 9700–9709, 9713–9714, 9716–9717, 9800–9801, 9827	<i>T-cell lymphoma</i>	None	71	1.00 (ref)	
			0.1–7	18	0.87 (0.49–1.53)						
			> 7.1–14	36	0.90 (0.46–1.79)						
			<i>P</i> trend = 0.96	17							
			<i>P</i> trend drinkers = 0.89								

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Allen <i>et al.</i> (2009), United Kingdom, The Million Women Study	954 450 middle-aged women, participants in breast screening programme in United Kingdom, between 1996–2001; no history of any other cancer than non-melanoma of the skin	Questionnaire sociodemographic characteristics and personal information at enrolment; follow up questionnaire three years after recruitment	ICD-10 NHL: C82-C85 Multiple Myeloma: C90 Leukaemia: C91-C93, C95	Alcohol consumption				Age, region of residence, socioeconomic status, body mass index, smoking, physical activity, oral contraceptive use, hormone replacement therapy	Floated confidence intervals	
				<i>NHL</i>	All women	2 320				
					Non-drinkers	616	1.03 (0.95–1.12)			
					Yes (drinks/week)					
					≤ 2	699	1.00 (0.93–1.08)			
					3–6	545	1.02 (0.94–1.11)			
					7–14	368	0.86 (0.78–0.96)			
					≥ 15	92	0.77 (0.62–0.94)			
					<i>P</i> trend drinkers = 0.001					
					Per 10 g/d	1704	0.87 (0.81–0.95)			
					<i>Multiple myeloma</i>					
					All women	786				
					Non-drinkers	213	1.06 (0.92–1.22)			
					Yes (drinks/week)					
					≤ 2	244	1.00 (0.88–1.14)			
	3–6	159	0.86 (0.74–1.01)							
	7–14	134	0.94 (0.79–1.12)							
	≥ 15	36	0.91 (0.66–1.27)							
	<i>P</i> trend drinkers = 0.6									
	<i>Leukaemia</i>									
	All women	993								
	Non-drinkers	251	0.98 (0.86–1.11)							
	Yes (drinks/week)									
	≤ 2	305	1.00 (0.89–1.12)							
	3–6	214	0.93 (0.81–1.07)							
	7–14	164	0.92 (0.79–1.07)							
	≥ 15	59	1.19 (0.92–1.53)							
	<i>P</i> trend drinkers = 0.6									

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Klatsky <i>et al.</i> (2009), USA, Multiethnic cohort, comprehensive prepaid health care program, San Francisco Bay Area	126 293 men and women, mean age at baseline 41 years, no hematologic malignancies, members of comprehensive prepaid health care program, San Francisco Bay Area; 79,8 response rate to alcohol questionnaire	Research check-sheet questionnaire during examination	ICD-9; Hodgkin disease: 201; NHL: 202; multiple myeloma: 203; lymphocytic leukaemia: 204; myelocytic leukaemia: 205	Alcohol intake				Age, ethnicity, BMI, marital status, cigarette smoking In the second statistical models, beverage choice was added to the models	No association of different alcohol beverage types and all hematologic malignancies. Possible association for Myelocytic Leukaemia among liquor drinkers: 0.87, 95% CI (0.76–1.00). The referent group in the first statistical models included never-drinkers plus persons reporting <1 drink/month. The referent group in the second statistical models included drinkers who drank <1 drink/day
				<i>HD</i>	Both sexes	62			
				Ex-drinkers		0.5 (0.1–4.0)			
				< 1 drink/day		1.4 (0.7–2.6)			
				1–2 drinks/day		0.8 (0.3–1.9)			
				≥ 3 drinks/day		0.4 (0.6–3.2)			
				<i>P</i> trend = 0.46					
				NHL					
				Both sexes	617		0.6 (0.4–1.1)		
				Ex-drinkers		1.2 (1.0–1.5)			
				< 1 drink/day		0.9 (0.7–1.2)			
				1–2 drinks/day		0.9 (0.6–1.2)			
≥ 3 drinks/day		0.9 (0.6–1.2)							
<i>P</i> trend = 0.25									
Multiple myeloma									
Both sexes	214		1.0 (0.5–1.9)						
Ex-drinkers		0.8 (0.6–1.2)							
< 1 drink/day		0.9 (0.6–1.4)							
1–2 drinks/day		0.8 (0.5–1.4)							
≥ 3 drinks/day		0.8 (0.5–1.4)							
<i>P</i> trend = 0.42									
lymphocytic leukaemia									
Both sexes	149		0.5 (0.2–1.4)						
Ex-drinkers		0.8 (0.5–1.3)							
< 1 drink/day		1.0 (0.6–1.5)							
1–2 drinks/day		0.4 (0.2–0.9)							
≥ 3 drinks/day		0.4 (0.2–0.9)							
<i>P</i> trend = 0.16									

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Klatsky <i>et al.</i> (contd)				<i>Myelocytic leukaemia</i>	170				
				Both sexes					
				Ex-drinkers					0.8 (0.4–1.7)
				< 1 drink/day					0.8 (0.5–1.1)
				1–2 drinks/day					0.6 (0.4–0.9)
				≥ 3 drinks/day					0.4 (0.2–0.9)
				<i>P</i> trend = 0.01					
				Second statistical model					
				<i>All hematologic malignancies</i>					763
				1–2 drinks/day					0.8 (0.6–0.9)
≥ 3 drinks/day	0.6 (0.4–0.5)								
<i>P</i> trend drinkers < 0.001									
<i>HD</i>	43								
1–2 drinks/day	0.5 (0.2–1.2)								
≥ 3 drinks/day	0.4 (0.1–1.3)								
<i>P</i> trend drinkers < 0.08									
<i>NHL</i>	400								
1–2 drinks/day	0.7 (0.5–0.9)								
≥ 3 drinks/day	0.6 (0.4–0.9)								
<i>P</i> trend drinkers = 0.004									

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Klatsky <i>et al.</i> (contd)				<i>Multiple myeloma</i>	117	1–2 drinks/day			
				≥ 3 drinks/day		1.0 (0.6–1.7)			
				<i>Lymphocytic leukaemia</i>	90	1–2 drinks/day			0.9 (0.4–1.8)
				≥ 3 drinks/day		0.8 (0.5–1.4)			
				<i>Myelocytic leukaemia</i>	91	1–2 drinks/day			0.3 (0.1–0.8)
				≥ 3 drinks/day		0.8 (0.5–1.5)			

CI, confidence interval; CLL, chronic lymphocytic leukaemia; HL, Hodgkin's lymphoma; NHL, non-Hodgkin's lymphoma; RR, risk ratio; SLL, small lymphocytic lymphoma