

Letters to the Editor

Number of Siblings and Risk of Hodgkin's and Other Lymphoid Neoplasms

To the Editors: Having older siblings, in contrast to younger ones, is a surrogate marker of earlier exposure to common childhood pathogens (1). A Swedish case-control study reported a reduced risk of Hodgkin's disease when subjects with three or more older siblings were compared with those without older siblings. No significant differences were found with younger and total number of siblings (2).

To provide further information on this topic, we report here findings from case-control study of lymphoid neoplasms conducted in northern Italy between 1983 and 1992 (3, 4). The study included 158 cases with histologically confirmed incident Hodgkin's disease (ages 15-77 years, median 41), 437 with non-Hodgkin's lymphoma (ages 15-79 years, median 58) and 141 with multiple myeloma (ages 38-79 years, median 63). Controls were 1,275 patients (ages 17-79 years, median 57) admitted for acute, non-neoplastic conditions (16% traumas, 28% other orthopedic, 35% surgical, and 21% other miscellaneous) to the same network of hospitals. Cases and controls were questioned by trained interviewers during their hospital stay. The proportion of refusals was <3%. Odds ratios (ORs) were estimated using unconditional multiple logistic regression, including terms for age, sex, study center, and level of education.

The number of older siblings was inversely related to the risk of Hodgkin's disease. Compared with subjects with no older siblings, the multivariate OR was 0.87 for those with one, 0.63 for two, and 0.59 for three or more older siblings (Table 1). The inverse association was similar in various age groups: the OR for subjects with one or more older siblings versus none was 0.79 at ages <40 years, 0.76 at ages 40-59 years, and 0.48 at ages \geq 60 years. No association emerged between younger and total number of siblings and the risk of Hodgkin's disease. Likewise, none of the other lymphoid neoplasms considered was associated with any measure of sibship size and order considered.

Our population had broadly different family sizes, as 58% of controls had three or more siblings compared with 6% in the Swedish study. Nonetheless, our study confirms that Hodgkin's disease is inversely related to the number of older siblings. The absence of association with non-Hodgkin lymphoma and

multiple myeloma indicates that this finding is not due to bias in the selection of controls. This supports the hypothesis that infections with (common) childhood pathogens, which are likely more frequent in individuals with more siblings and later birth order, may have a favorable impact on the risk of Hodgkin's disease (5) but not on other lymphoid neoplasms.

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Table 1. ORs and 95% confidence intervals of Hodgkin's disease, non-Hodgkin's lymphoma, and multiple myelomas according to number of older and younger siblings, Italy, 1983 to 1992

Type of cancer	Older siblings				Younger siblings			
	0	1	2	\geq 3	0	1	2	\geq 3
Hodgkin's disease (n = 154)								
n (%) cases	64 (41.6)	45 (29.2)	18 (11.7)	27 (17.5)	48 (31.2)	43 (27.9)	23 (14.9)	40 (26.0)
OR*	1 [†]	0.87	0.63	0.59 [‡]	1 [†]	0.89	1.06	1.26
(95% confidence interval)		(0.57-1.33)	(0.36-1.12)	(0.36-0.98)		(0.57-1.40)	(0.61-1.83)	(0.78-2.03)
Non-Hodgkin's lymphomas (n = 437)								
n (%) cases	133 (30.4)	112 (25.6)	70 (16.0)	122 (27.9)	129 (29.5)	109 (24.9)	65 (14.9)	134 (30.7)
OR*	1 [†]	1.06	0.97	0.93	1 [†]	0.88	0.90	1.02
(95% confidence interval)		(0.79-1.43)	(0.69-1.37)	(0.69-1.26)		(0.66-1.19)	(0.63-1.27)	(0.76-1.37)
Multiple myeloma (n = 136)								
n (%) cases	42 (30.9)	31 (22.8)	21 (15.4)	42 (30.9)	33 (24.3)	31 (22.8)	21 (15.4)	51 (37.5)
OR*	1 [†]	0.97	0.84	1.07	1 [†]	1.08	1.01	1.33
(95% confidence interval)		(0.59-1.59)	(0.48-1.48)	(0.67-1.71)		(0.64-1.82)	(0.57-1.82)	(0.82-2.14)
Controls (n = 1,275)								
n (%)	398 (31.2)	325 (25.5)	209 (16.4)	343 (26.9)	373 (29.3)	347 (27.2)	208 (16.3)	347 (27.2)

*ORs adjusted for age, sex, study center, and education.

[†]Reference category.

[‡] χ^2_1 for trend = 5.1, P = 0.02.