Supplemental Material

Road Traffic and Childhood Leukemia: The ESCALE Study (SFCE)

Authors

Alicia Amigou[1,2], Claire Sermage-Faure[1,2], Laurent Orsi[1,2], Guy Leverger[3], André Baruchel[4], Yves Bertrand[5], Brigitte Nelken[6], Alain Robert[7], Gérard Michel[8], Geneviève Margueritte[9], Yves Perel[10], Françoise Mechinaud[11], Pierre Bordigoni [12], Denis Hémon[1,2], Jacqueline Clavel[1,2,13]

[1]INSERM, CESP Environmental epidemiology of cancer, U1018, Villejuif, France

[2]Université Paris-Sud 11, UMRS-1018, Villejuif, France

[3]AP HP, Hôpital Armand Trousseau, Paris, France

[4]AP HP, Hôpital Saint-Louis and Hôpital Robert-Debré, Paris, France

[5]Hôpital Debrousse, Lyon, France.

[6] Université Lille Nord de France, Lille, France

[7]Hôpital des Enfants, Toulouse, France

[8]Hôpital La Timone, Marseille, France

[9]Hôpital Arnaud de Villeneuve, Montpellier, France

[10]Hôpital Pellegrin Tripode, Bordeaux, France

[11]Hôpital mere-Enfant, CHU-Nantes, France

[12] Hôpital d'enfants de Brabois, Nancy, France

[13]National Registry of Childhood Blood malignancies (RNHE), Villejuif, France

Supplemental Material, Table 1. Distribution of the cases and controls by the stratification variable age*gender

used for quota sampling.

Age (year)	Controls (N=1681) N	%	AL (N=763) n	%	ALL (N=645) N	%	ANLL (N=118) n	%	Controls per case
Boys									
< 2	201	*12*	53	*7*	34	*5*	19	*16*	3.8
2	79	*5*	54	*7*	49	*8*	5	*4*	1.5
3	87	*5*	59	*8*	56	*9*	3	*3*	1.5
4	89	*5*	48	*6*	42	*7*	6	*5*	1.9
5-6	126	*8*	60	*8*	51	*8*	9	*8*	2.1
7-8	96	*6*	35	*5*	29	*5*	6	*5*	2.7
9-11	137	*8*	59	*8*	49	*8*	10	*8*	2.3
12-14	117	*7*	46	*6*	36	*6*	10	*8*	2.5
Girls									
< 2	168	*10*	59	*8*	41	*6*	18	*15*	2.8
2	74	*4*	49	*6*	46	*7*	3	*3*	1.5
3	79	*5*	50	*7*	47	*7*	3	*3*	1.6
4	56	*3*	38	*5*	35	*5*	3	*3*	1.5
5-6	102	*6*	60	*8*	55	*9*	5	*4*	1.7
7-8	67	*4*	40	*5*	33	*5*	7	*6*	1.7
9-11	88	*5*	34	*4*	26	*4*	8	*7*	2.6
12-14	115	*7*	19	*2*	16	*2*	3	*3*	6.1
				***		***			

*** p<0.001

Supplemental Material, Table 2. Relationship between childhood leukemia and traffic indicators by urban/rural status of the residence.

Indicators of exposure to roads and traffic	Rural and semi-urban areas				Urban areas			
	Controls	Cases			Controls	Cases		
	n=992	n=431	OR[a]	95% CI	n=689	n=332	OR[a]	95% CI
Traffic-related NO_2 concentration								
Low (<12.2 µg/m^3)	689	284	1.0	Ref.	151	53	1.0	Ref.
Intermediate (12.2 – 16.1µg/m^3)	240	116	1.1	(0.9-1.5)	181	104	1.6	(1.1-2.4)
High (≥16.2µg/m^3)	63	29	1.2	(0.7-1.9)	357	175	1.4	(0.9-2.0)
Density of heavy-traffic roads within 500 meters of the residence								
Unexposed	777	333	1.0	Ref.	478	214	1.0	Ref.
Low	188	83	1.1	(0.8-1.4)	160	82	1.1	(0.8-1.6)
Intermediate	23	13	1.5	(0.7-3.0)	35	21	1.3	(0.7-2.3)
High	4	2	1.3	(0.2-7.6)	16	15	2.1	(1.0-4.5)
Proximity to main roads (meter)								
Unexposed	482	193	1.0	Ref.	190	89	1.0	Ref.
Low	470	222	1.2	(1.0-1.6)	435	200	1.0	(0.7-1.3)
Intermediate	34	14	1.2	(0.6-2.3)	44	23	1.1	(0.6-1.9)
High	6	2	1.0	(0.2-5.4)	20	20	2.1	(1.1-4.2)
Composite exposure indicator								
Unexposed	368	144	1.0	Ref.	56	21	1.0	Ref.
Intermediate	621	285	1.2	(0.9-1.5)	620	295	1.2	(0.7-2.1)
High	3	2	1.9	(0.3-12.2)	13	14	2.8	(1.1-7.0)

[a]Odds ratios (OR) and their 95% confidence intervals (CI) estimated by unconditional logistic regression models including the stratification variable age*gender and socioeconomic status

Supplemental Material, Table 3. Relationship between childhood leukemia and traffic indicators restricted to the children who had never moved and to the children who had lived for at least 2 years in the house they inhabited at the time of diagnosis or interview.

Indicators of exposure to roads and traffic	All				Never moved since conception				Had not moved in the preceding 2 years			
	Controls n=1681	Cases n=763	OR[a]	95% CI	Controls n=769	Cases n=278	OR[a]	95% CI	Controls n=1282	Cases n=548	OR[a]	95% CI
Proximity to main roads (meter)												
Unexposed	672	282	1.0	Ref.	316	103	1.0	Ref.	522	191	1.0	Ref.
Low	905	422	1.1	(0.9-1.4)	413	149	1.1	(0.8-1.5)	685	310	1.3	(1.0-1.6)
Intermediate	78	37	1.2	(0.8-1.8)	32	18	1.8	(1.0-3.5)	60	31	1.4	(0.9-2.3)
High	26	22	2.0	(1.0-3.6)	8	8	3.4	(1.2-9.7)	15	16	3.0	(1.4-6.2)
Density of heavy-traffic roads within 500 meters (meter)												
Unexposed	1255	547	1.0	Ref.	575	195	1.0	Ref.	955	384	1.0	Ref.
Low	345	163	1.1	(0.9-1.4)	162	59	1.1	(0.8-1.6)	268	123	1.1	(0.9-1.5)
Intermediate	61	34	1.3	(0.8-2.0)	24	17	2.2	(1.1-4.3)	46	29	1.5	(0.9-2.4)
High/very high	20	19	2.2	(1.1-4.2)	8	7	2.9	(1.0-8.4)	13	12	2.4	(1.1-5.5)
Composite exposure indicator												
Unexposed	675	166	1.0	Ref.	200	56	1.0	Ref.	336	112	1.0	Ref.
Low Intermediate	990	581	1.3	(1.1-1.5)	559	202	1.3	(0.9-1.9)	935	425	1.4	(1.1-1.8)
High	16	16	2.4	(0.6-9.3)	6	7	3.9	(1.2-12.3)	11	11	3.3	(1.4-8.1)
Traffic NO_2 concentration												
Low (<12.2 μg/m^3)	840	337	1.0	Ref.	392	121	1.0	Ref.	647	238	1.0	Ref.
Intermediate (12.2 – 16.1μg/m^3)	421	220	1.3	(1.0-1.6)	184	69	1.1	(0.8-1.6)	317	164	1.3	(1.0-1.7)
High (≥16.2μg/m^3)	420	204	1.2	(1.0-1.5)	190	74	1.3	(0.9-1.9)	318	145	1.4	(1.1-1.8)
Missing	0	2			0	2			0	2		

[a]Odds ratios (OR) and their 95% confidence intervals (CI) estimated by unconditional logistic regression models including the stratification variable age*gender and socioeconomic status