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Malignant lymphomas in road transport workers

R BALARAJAN

From the Medical Department, South West Regional Health Authority, London W2 3QR, and the Department of Clinical Epidemiology. St George's Hospital Medical School, London SW17, UK

SUMMARY The relative risks of malignant lymphomas among road transport workers were investigated using the National Cancer Registry in England and Wales. Drivers of buses and coaches (OCC unit 120) had increased risks for both Hodgkin's and non-Hodgkin's lymphomas and the drivers of other road passenger vehicles (OCC unit 121) for Hodgkin's lymphomas only. Although the increased risks did not show statistical significance, they corresponded to and reinforced previously described findings based on occupational mortality.

Excess mortality from malignant lymphomas among transport workers was reported recently in England and Wales.[1] This was confined to three occupational units—namely, 120 (drivers of buses and coaches); 121 (drivers of other road passenger vehicles, mainly taxi drivers); and 122 (drivers of road goods vehicles) as defined in the Classification of Occupations.[2]

The present study investigates the risk from malignant lymphomas among road transport workers relative to other occupations in the form of a case-control study using the National Cancer Registry in England and Wales over a different period. The occupations used are as recorded at the time of registration, and no attempt has been made to establish the time spent in the respective occupations.

Materials and methods

The National Cancer Registry collects data on all cases of malignant disease in England and Wales through the 14 regional registries and the Welsh registry. Information is collected on the site and histological type of tumour, along with other particulars of the patient at the time of registration.

Malignant lymphomas are collected under the ICD categories: 200–lymphosarcoma and reticulum cell sarcoma; 201—Hodgkin's disease; and 202—other neoplasms of lymphoid tissue, according to the eighth ,revision of the International Classification of Diseases.[3] Occupation of the patient at the time of registration is also collected and coded and is available for about 60% of the registered cases. The occupational units investigated in this study were: 120–drivers of buses and coaches; 121—drivers of other road passenger vehicles (mainly taxi drivers); 122—drivers of road goods vehicles; 131—bus conductors; and 134—lorry drivers' mates etc, as defined in the Classification of Occupations*

Patients in the study were male (15 years and over) with a valid occupational code and registered with lymphosarcoma, reticulum cell sarcoma (ICD 200), and Hodgkin's disease (ICD 201), and other neoplasms of lymphoid tissue (ICD 202) in the years 1973–7 inclusive. Controls were randomly chosen from registered cases (other than that under ICD 200–202) and matched 1:1 for age ,sex, and region of residence. Significant excess in cases over that of controls were tested using McNemar's test[4] and confidence limits calculated as described by Breslow and Day.[5]

Results

There were 8222 matched pairs available for analysis in the study period 1973–7. The group as a whole did not show increased relative risk of developing malignant lymphomas; however, the individual occupation units showed interesting and significant variations among them.

Drivers of buses and coaches (OCC unit 120) showed a consistently raised risk for all three sites (tables 1–3); lymphosarcoma and reticulum cell sarcoma (ICD 200) RR of 1.16 (95% confidence limits 0·60–2·26); Hodgkin's disease RR of 1.91 (95% confidence limits 0·92–4·23); other neoplasms of lymphoid tissue (ICD 202) RR of 1·63 (95% confidence limits 0·62–4·52), though none of them reached statistical significance. Drivers of other road passenger vehicles—mainly taxi drivers (OCC unit 121)—also showed increased relative risks for Hodgkin's disease (ICD 201) RR of 1.47 (95% confidence limits 0.73–3.04); other neoplasms of lymphoid tissue (ICD 202) RR of 1·67 (95%

confidence limits 0·68–4·32). Drivers of road goods vehicles (OCC unit 122), bus conductors (OCC unit 131), and lorry drivers' mates, etc (OCC unit 134) did not show increased risk; however, the latter two units had only 15 cases and one case registered under the three categories (ICD 200–202).

Discussion

The results of this study lend further evidence to support the finding of the analysis based on occupational mortality.' In both studies drivers of buses and coaches and drivers of other road passenger vehicles—mainly taxi drivers—have increased risks for malignant lymphomas, whereas drivers of road goods vehicles show increased risks only in the analysis of mortality. In view of the few cases in the study, the results do not achieve statistical significance. Nevertheless, the fact that this study, based on cancer incidence data over a later period, showed similar results is further suggestive evidence in favour of common exposure factors (possibly exhaust fumes) in the causation of lymphomas.

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Table 1 *Relative risks among transport workers for lymphosarcoma and reticulum cell sarcoma: ICD 200 (1973–7)*

Occupation	Unit	No of cases	Relative risk	95% Confidence limits
Dnven of buses and coaches	(120)	22	1 16	0·60–2·26
Dnven of other road passenger vehicles	(121)	19	0.95	0·48–1·88
Drivers of road goods vehicles	(122)	111	0.93	0·71–1·22
Bus conductors	(131)	4	0.57	0·12–2·25
Lorry drivers' mates, ecc	(134)	0	–	

Table 2 *Relative risks among transport workers for Hodgkin's disease: ICD 201 (1973–7)*

Occupation	Unit	No of cases	Relative risk	95% Confidence limits
Driven of buses and coaches	(120)	23	1.91	0·92–4·23
Dnven of other road passenger vehicles	(121)	22	1.47	0·73–3·04
Dnvm of road goods vehicles	(122)	111	0·87	0·67–1·14
Bus conductors	(131)	3	0·75	0·11–4·43
Lorry drivers' mates, etc	(134)	1	0.5	0·00–9·60

Table 3 *Relative risks among transport workers for other lymphomas: ICD 202 (1973–7)*

Occupation	Unit	No of cases	Relative risk	95% Confidence limits
Dnven of buses and coaches	(120)	13	1.63	0·62–4·52
Drivers of other road passenger vehicles	(121)	15	1.67	0·68–4·32
Dnven of road goods vehicles	(122)	64	0.90	0·63–1·28
Bur conductors	(131)	8	2.67	0·64–15·6
Lorry drivers' macer. etc	(134)	–	–	–

References

1. Balarajan R, McDowell M. Malignant lymphomas and road transport workers. *J Epidemiol Community Health* (in press).
2. Office of Population Censuses and Surveys. *Classification of occupations.* London: HMSO, 1970.
3. World Health Organisation. *International classification of diseuses.* 8th rev. Geneva: WHO, 1975.
4. MacMahon B, Pugh T. *Epidemiology: principles and methods.* Boston: Little, Brown & Co, 1970.
5. Breslow NE, Day NE. *Statistical methods in cancer research.* Lyon: International Agency for Research on Cancer/World Health Organisation, 1980: 164–6.