

Letter to the Editor

Low frequency of blood group A in secondary central nervous system lymphoma

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Sir,

ABO blood groups have been associated with a number of cancers, most prominently gastric cancer.^[6] We and other groups demonstrated an association between blood groups and myeloid malignancies.^[1,3,4,9] However, only two reports are available on such associations with lymphoma. A study on 63 patients with Hodgkin's lymphoma and 78 patients with non-Hodgkin's lymphoma revealed a significantly lower prevalence of blood group A among both groups compared with healthy controls.^[9] The same result was obtained by the authors on 36 cases of primary central nervous system lymphoma (PCNSL).^[7] Given that blood group A seems to be less frequent in patients with lymphoma (and PCNSL in particular) than in healthy controls, we next attempted to evaluate patients with secondary CNS lymphoma (SCNSL). The primary site of the tumor in this group of patients is not CNS, which later becomes involved in 10%–30% of cases.^[10] Almost all CNS lymphomas are non-Hodgkin's B-cell tumors with the cumulative risk of CNS involvement being 39% for high-grade, 20% for intermediate grade, and 7% for low-grade tumors.^[5]

We had 202 patients (113 males) aged 49.7 ± 13.5 years (range: 16–80) with an established diagnosis of SCNSL, in three referral hospitals in Tehran. CNS involvement (at the first diagnosis of lymphoma or at relapse) was diagnosed by the patient's history and by clinical examination, computed tomography scan or magnetic resonance imaging (MRI) and/or cerebrospinal fluid (CSF) examination. The meninges were considered to be involved if MRI of the meninges showed infiltration and/or if the CSF showed positive cytology. Patients with CNS-related symptoms and a white blood cell count $>20 \times 10^6/L$ in the CSF were also considered

to have meningeal involvement. All the biopsies were classified according to the Kiel classification.^[8] The distribution of ABO blood groups among patients was compared with data previously published for 1000 Iranian healthy controls.^[2] For subset analysis, a Bonferroni's correction was applied by multiplying *P* values by 4.

Diffuse large cell lymphoma, Burkitt's lymphoma and lymphoblastic lymphoma comprised a total of 48.0% of our patients. The most common primary site was head and neck structures (43.6%), followed by thorax (26.7%). Blood group distribution was not statistically different between males and females (*P* = 0.301). The O:A:B:AB ratio among patients and controls were 60 (29.7%):10 (5.0%):125 (61.9%):7 (3.5%) and 356 (35.6%):371 (37.1%):212 (21.2%):61 (6.1%), respectively (*P* < 0.001). The frequency of group A was dramatically lower among patients (*P* < 10^{-10}). Although it is the most common blood group in Iran, group A was found in only 5.0% of our patients. This difference was at the cost of a higher frequency of group B in patients.

All together, the results of the two available reports on the association between ABO blood groups and lymphoma along with the results of the present study show a low frequency of blood group A among patients with systemic

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lymphoma, PCNSL, and SCNSL.^[7,9] Is this result a mere association or, does it reflect a yet unknown protective role played by blood group A? More studies are needed to clarify the significance of this association.

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Commentary

The authors have presented a correlative study of ABO blood type and secondary CNS lymphoma, utilizing patient information from three referral hospitals in Tehran. Although earlier studies have noticed blood group trends with other tumor types, this has not been previously investigated in this patient population. The authors found an exceedingly low number of patients with blood group A. While this report does not show causation in this relationship, it does raise a number of interesting questions. Most importantly, "Are there protective affects, or deleterious affects, conferred by specific blood types and specific cancers?" If so, can the molecular basis of these potential affects be delineated and exploited for potential treatment?

The editors are to be congratulated for publishing this type of preliminary observational information, as it can serve to spark interest and further study. Basic observations, like those presented, often serve as the foundation for more complete future studies. Hopefully, those with further expertise will utilize this information and take us another step forward.

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