CASE REPORT

Burkitt’s lymphoma patients in Northwest Cameroon have a lower incidence of sickle cell trait (Hb AS) than healthy controls

P B Hesseling,1 MD; D T Jam,2 MD; D D Palmer,2 MD; P Wharin,3 MD; G S Tuh,2 Dip Tech; R Bardin,2 MD; M Kidd,7 PhD

1 Department of Paediatrics and Child Health, Tygerberg Children’s Hospital, Stellenbosch University, Cape Town, South Africa
2 Mbingo Baptist Hospital, Mbingo, Northwest region, Cameroon
3 Beryl Thyer Memorial Africa Trust, Warkton, UK
4 Department of Biostatistics, Stellenbosch University, Cape Town, South Africa

Corresponding author: P B Hesseling (pbh@sun.ac.za)

Contradictory findings have been reported from Africa with regard to the risk of developing Burkitt’s lymphoma (BL) in sickle cell trait (AS) carriers. Haemoglobin electrophoresis was performed in 78 BL patients in the Northwest region of Cameroon, and in 78 nearest-neighbour controls of the same age, sex and tribe from the same village. AS was confirmed in 4 of 78 (5.13%) BL patients and in 11 of 78 (14.10%) controls ($\chi^2; p=0.052$; Fisher’s exact, one-tailed, $p=0.050$). Sickle cell trait carriers had a marginal statistically reduced risk of developing BL.

Methods

Seventy-nine BL patients in the Northwest region of Cameroon were visited at home, where a nearest-neighbour control of the same tribe, age and sex was identified. One parent of a patient with BL refused consent. An ethylenediaminetetra-acetic acid (EDTA) venous blood sample was obtained from the index patients and controls, and paper electrophoresis was performed at pH 8.9 in boric and trisaminomethane (TRIS) buffer. Institutional review board approval and informed parental consent were obtained.

Results

The 79 BL patients included 41 girls and 38 boys aged 4 - 17 (mean 9.9) years. Controls had a similar age and gender distribution. Four (5.13%) BL patients had AS compared with 11 (14.10%) controls ($\chi^2(\text{df}=1)=3.74, p=0.052$; Fisher’s exact, one-tailed, $p=0.050$) (Table 1).

Table 1. Observed frequencies of Hb AA and Hb AS Subjects Hb AA Hb AS Total
Patients, $n$ 74 4 78
Patients, % 94.87 5.13
Controls, $n$ 67 11 78
Controls, % 85.9 14.10
Total 141 15 156
$\chi^2(\text{df}=1)=3.74, p=0.052$; Fisher’s exact, one-tailed, $p=0.050$.

Discussion

The validity of the Nigerian study[4] was later questioned because controls were not from the same tribe, region and village. It is not clear whether controls in the Kenyan study[5] were carefully matched for age and if they were indeed nearest-neighbour controls. This is of critical importance because of large differences in the distribution of the AS gene.

Conclusion

The relatively small number of patients studied limits the statistical significance of our findings. This study of confirmed BL patients and very well-matched controls did, however, demonstrate that AS carriers in Cameroon probably have a reduced risk of developing BL. Further studies in this regard are justified.

Acknowledgement. We acknowledge laboratory support from the Cameroon Baptist Convention Health Board.

References


Accepted 24 February 2016.