

**GEOGRAPHICAL, DEMOGRAPHICAL AND
SOME CLINICAL CHARACTERISTICS OF BURKITT'S
LYMPHOMA IN KENYA**

BY

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Abstract

Much importance is currently being attached to Burkitt's lymphoma (BL) as a disease in tropical Africa and it is currently under a critical study in this region. Kenya lies in the region where Burkitt's lymphoma is expected to be prevalent. However, even within the tropics, BL's distribution may vary substantially depending on geographical, demographical and clinical characteristics.

Since the description of Burkitt's lymphoma in 1958, significant changes have occurred in the demographical pattern of the disease in Kenya. Such changes have been associated with the emergence of Human Immune deficiency Virus (HIV) and also changes in the geographical distribution of malaria infection. It is against this background that Burkitt's lymphoma was investigated in this study.

The aim of the current work was: to determine the geographical, demographical and anatomical distribution, and to review some clinical aspects of Burkitt's Lymphoma including effects of HIV infection on this disease in Kenya.

This was mainly a descriptive hospitals based study. The research was undertaken by a retrospective review of patients' records for the years between 1988 to 1992 and a prospective evaluation of patients with Burkitt's lymphoma between 1993 and 1997.

The vital statistics of age, sex, province of birth and residence, and tribe were considered as well as clinical presentations such as major complaints of swelling, fever, abdominal distension, pain, and duration of these complaints. Physical examination findings, investigation results for the anatomical sites, stages of Burkitt's lymphoma and HIV serological test for all adult cases were documented.

In this study the proportions was used in comparison with variables and the Pearson's linear correlation was used to establish possible trends

During the ten years of study 1005 cases were randomly selected and included in the study, 95.6% of which were children while 4.4% were adults. The 0-14 age group registered an ASR of 0.83, CY I of 12.5 with an increasing trend. In the country's provinces' BL incidence was found to vary, ranging from: 1.8(Coast) to 0.23(Rift Valley). An increasing disease trend was observed in Nairobi, Central, Eastern, Coast and Nyanza provinces. In the Western and Rift Valley provinces, the disease was stable while a decrease in trend was observed in the North Eastern. Adult patients showed increased trends. These observations could be due to changes in the disease patterns that have taken place such as the emerging HIV infection, changing distribution of malarial infection, population dynamics, and other environmental interactions with individual attributes.

The case distribution in the major tribes was also varied and ranged from 29.5% in the Coastal tribes to 0.3% in the Kalenjin. Sheer numerical numbers, social, economic and perhaps cultural factors may contribute to the observed variations. Again adult cases showed a rising trend in most tribes.

An analysis of age-related patterns of the disease showed that there were no cases below two years of age. Then there was a rapid rise from three years with a peak (19.5%) at six years of age for children and another peak at 17 years of age for adults. The oldest case in this study was 57 years old. The highest incidence rate was observed at 5-9 and the lowest at 15-19 years of age.

Observations on the disease pattern by gender revealed an overall male to female (M:F) ratio of 1.5:1 and 1:1, in children and adults respectively with varying provincial ratios ranging from 2.6:1 in Nairobi, to 1.2:1 in Nyanza. Also the tribe M:F ratio ranged between 1.2:1 among Luo, to 1:1 in other tribes.

The study observed that Burkitt's lymphoma is a rapidly growing tumor with the peak duration of 4 and 8 weeks. Major affected sites included the jaw (51.6%), abdomen (25%), combined jaw and abdomen (13.8%) and (9.6%) others. Adults jaw (4.5%), abdomen (43.2%), combined jaw and abdomen (25%) and other sites (27.3%).

Furthermore, a comparison of the ratio of jaw to abdominal manifestations by provinces revealed that only in Coast, Western and North Eastern provinces, there was more jaw than abdominal presentations. Involvement of the jaw was dominant more among the Coastal, Kisii and Luhya. Variations were also observed in anatomical tumor patterns among the tribes. Nearly equal jaw to abdomen proportions seen in the Luo while clear predominance of abdominal tumours was observed among the Kikuyu.

It was further observed that anatomical sites of the disease also varied with age as jaw peaked at 3 years with 66.7% and abdomen at 14 years with 66.7%. In adults, abdominal manifestation was predominant in all age groups.

Anatomical sites and gender were as follows: jaw 55% males verses 45% females, abdomen 21% males verses 31% females, combined jaw and abdomen 13% males verses 16% females.

As a whole, these observations would be consistent with those for an intermediate risk Burkitt's lymphoma area though in fact Kenya is within a high risk area. The staging of BL at presentation of the study cases revealed the following: A 35.2%, B 31.1%, C 31% and D 2.7%. In adults, only stage D 75% and C 25% were found. Late reporting to health institutions and delays in diagnosis could partly explain these findings.

The yearly trends in childhood stages A, B and C were rising but stage D appeared to show no changes. In adults all stages showed an upward yearly trend. However, stage A had a decline as the age of the cases increased. Stage B revealed no changes, while stage C and D exhibited increasing yearly trends. Males dominated in stage A, B and D, but females were predominant in stage C. Stage A dropped with advancing age for both males and females but there were no significant differences in stage B pattern both in age and between the sexes. Stage C and D showed less dramatic increase in males with age progression compared to the dramatic increase with age observed in females.

Only 0.3% of children and 59% adults were HIV seropositive but there was an overall increasing trend from 2.3 in 1992 to 6.1 cases per year in 1997. Most adults with BL and who were above 25 years of age had HIV infection with the peak age at 34 years, 67.6% males and 42.4% females were HIV infected. HIV infected cases had disseminated Burkitt's lymphoma with findings of pancytopenia, lymph nodes, scalp, and bone marrow involvement.

In conclusion this study demonstrates that Burkitt's lymphoma is a childhood disease and that its rate for this region is at the intermediate risk level, contrary to earlier beliefs that this was a high risk area. There is also varied BL rate with regards to the provinces, tribes, ages and gender. The involved anatomical sites at the initial presentation are more protean and presentation with masses outside the jaw and abdomen were not infrequent.

Therefore Burkitt's lymphoma is a distinctive lymphoproliferative disease whose characteristics depend on the geography, age, sex and certain environmental factors such like infections.

It is recommended that the screening for HIV infection in patients with Burkitt's lymphoma should be considered for those above 18 years of age and particularly those with lymph node enlargement. Also that at least three centers in the Coast, Western and Nairobi provinces be set up for proper management of Burkitt's lymphoma in Kenya.