

Childhood Cancer in Africa

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A child dies somewhere in the world every 5 seconds; a child dies of cancer every 5 minutes. Most of the diseases children die of in Africa, are preventable. Most of the cancers they die of are 80 - 90% curable in the developed world.

Eighty percent of all childhood cancers occur in the developing world.

Eighty percent of childhood cancers in Africa receive inadequate or no treatment at all.

Sub-Saharan hospitals do not usually have a reliable and consistent supply of chemotherapy drugs. There being no National Health Service, and private medical care only for the favoured few, the necessary drugs for cancer are unaffordable to the majority of patients' carers. It became clear to the author in 2002, that children with cancer died because their parents were poor.

The horror of this situation is compounded by the knowledge that the commonest childhood cancer in Africa is universally fatal if untreated - and rapidly so. *It is potentially curable.*

The commonest child cancer in Africa by far, is called Burkitt's lymphoma (BL). It is more common than all other child cancers added together. Burkitt was a British physician who started work in Uganda in 1948. He was not the first to observe the tumour in the jaws of African children, but he was the first to describe it and to publish his results in treating it.

By simple but well-documented observation, Burkitt found that the childhood tumour of the jaws occurred only between latitudes 12 degrees north and 12 degrees south of the Equator. This he discovered in a rudimentary research tour, with 2 young colleagues and a second-hand Ford Station wagon and a research grant of £250! They covered 10,000 miles in ten weeks, handing out questionnaires at numerous medical facilities from the tropics to South Africa. The zone where the tumour had been seen is now called the 'Burkitt Belt', and the tour itself the 'Tumour Tour'. We now know that BL occurs westward in the South American Amazon basin, and eastward in Papua New Guinea. We also know that occasional cases of BL occur in temperate zones; this is called sporadic BL, as opposed to the endemic BL of the tropics. The causation of these types must be different, but the clinical appearance, and pathological findings are identical - as is the treatment.

Burkitt had lost one eye in a playground fight in school. He was however a wonderful observer and epidemiologist. His colleagues remarked that Burkitt observed more with his one eye than most of them did with both.

In the course of his work at Mulago in Uganda, he also found that the tumour that was later named after him, was not found at altitudes higher than 1,500 metres; nor was it found if the average temperature was less than 15 degrees Celsius; nor was it found if the average rainfall was less than 200 inches per year. Moreover it was most common in communities near rivers or lakes. All this puzzled Burkitt; why should a child cancer have anything to do with altitude, rain-fall, and ambient temperatures? It took a physician colleague in Mulago - Professor Alex Haddow, to say that what Burkitt was describing, was the environment favoured by the mosquito, and the disease malaria which it transmits. We now know that endemic BL is not found except in areas where there is intense transmission of the most serious form of malaria: falciparum malaria. It is also known that other factors are involved in the causation of BL.

Professor Michael Epstein in London, acquired samples of BL tumour from Burkitt, and within them found a virus hitherto unknown. It became known as the Epstein-Barr virus. This is not uncommonly found in young people in temperate zones, and is responsible for the disease Glandular Fever - a nasty but not fatal disease. The virus is known to be present in many African babies under one year of age, and in more than 90% of BL children.

Another finding regarding causation of BL has come to light; geneticists have found chromosomal abnormalities in a considerable proportion of BL cases. A further observation from Malawi suggests that a particular species of Euphorbia - commonly and widely grown there - appears to be involved in the causation of BL. So the cause of this fearful cancer of African children appears to be multifactorial. Much research work continues.

The main treatment for children with BL, is chemotherapy. Burkitt discovered that the tumour responded rapidly to the anticancer drug called Cyclophosphamide even in small doses. It is not, compared with other anticancer drugs, very expensive. It is widely used as the first line of attack in BL. The sad fact is that many sub-Saharan hospitals do not stock the drug.

The author contacted the manufacturers of Cyclophosphamide in 2002, and since then has received from them, donations of it in sufficient quantities, to meet the needs of all BL children in the three hospitals the Beryl Thyer Trust serves. We can now save the lives of 65% of cases sent to us. This is not as good as the cure rate for child cancer in the developed world, but much better than the historical cure rates for Africa. To date the Trust and its Cameroonian teams of doctors and nurses, under the clinical leadership of Professor Peter Hesseling of Stellenbosch University, South Africa, has saved the lives of almost 1,000 children.

The cost of treatment of the occasional cases of BL in the UK, is between £35,000 and £75,000 per child - depending whether the child requires the facilities of the intensive Care Unit. Multiple drugs and sophisticated supportive care accounts for the high costs. In our African hospitals the treatment has to be tailored to our cash-restricted circumstances; supportive care is of a simpler nature; only well-established basic antibiotics are available. Kidney machines are not available; intravenous nutrition is absent. As a result our survival rates are not so high, but

our programme is safe, appropriate, effective and affordable for African children. We give all the required drugs, we pay for all necessary investigations, we pay the hospital bills of all patients. Nutritional assistance and travel allowance comes from Prof Hesseling's research resources. Follow-up is done assiduously; palliative care is in place for those we cannot save. On average we can rescue a child with BL for around £100; perhaps £150.

