

# Malignant tumours among children in Sidamo and Gamu Gofa in southern Ethiopia.

by

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from

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## Summary

This is a paper I wrote in 1988 while I worked as a doctor at Sidamo Regional Hospital in Yirga Alem in Ethiopia. Today the hospital has been renamed to Yirga Alem Hospital. The article has been presented at local health conferences but has not been published before. I believe it is of historical interest for researchers and policymakers who wish to study the pattern of cancers in the area. I have briefly edited the original paper.

The pattern of childhood malignancies from southern Ethiopia is presented as it appears from a retrospective study of biopsy proven malignancies during the period 1963—1986. Retinoblastoma was the most frequently observed tumour, but lymphomas were also frequently observed. Hodgkin's Disease and Burkitt's lymphoma were the two most common lymphoma types .

## Introduction

Geographical and temporal variations in the occurrence of cancers are among the most important sources of data to formulate hypothesis regarding possible causes of cancers [1] . Differences in cancer incidence are probably associated with factors in the social, cultural and geographical environments [2] .

Very few studies are available on the pattern of childhood cancers from Ethiopia. Burkitt's lymphoma, first reported from Ethiopia in 1972 [3], has been described as the second most common lymphoma among children in southern Ethiopia [4], and Ahmed [5] has described the cancer pattern among children admitted to the Ethio-Swedish Paediatric Clinic in Addis Ababa.

The objectives of this paper are to describe the childhood cancer pattern in southern Ethiopia as it appears from a retrospective analysis of biopsy proven malignancies in the period 1963 to 1986. Attempts have also been made to describe the bias that are hidden in the data.

## **Patients and methods**

### **Patients :**

All reports on biopsies taken at three hospitals (Sidamo Regional Hospital, Yirga Alem, Sidamo, 1963-1986; Arba Minch Hospital, Arba Minch, Gamu Gofa, 1973-1985; Gidole Hospital, Gamu Gofa, 1969-1984) were reviewed. For each case of malignant neoplasm patient age, sex, card number, hospital, year of diagnosis, and diagnosis were recorded. The tumours were classified by site using the Ninth Revision of The International Classification of Diseases (ICD 1975) [6]. For the purpose of this study, only patients in the 0-14-year age group have been studied. All patients were Ethiopian citizens .

Formalin fixed biopsy material have been studied either at the Department of Pathology, The Norwegian Radium Hospital or at the Laboratorium for Patologi, both of Oslo, Norway.

For information on general background, hospitals catchment areas and estimation of bias in the data the reader is referred to an earlier publication [7] .

### **Methods :**

Since accurate vital statistics are lacking and since health service coverage has been low, the relative ratio frequency of cancers ( i.e. percentage of tumour type related to the total numbers of tumours diagnosed) have been calculated. This method, although having its well-defined fallacies [8, 9], has from previous studies in Africa proved useful and relatively accurate in defining the cancer pattern [2].

Data were analysed on a microcomputer using the ABstat programme (Anderson Bell, Canon City, USA).

### **Ethical issues**

This is a study that was carried out on routinely collected information at the hospital during the period 1985/86. All patients agreed to be tested as part of routine patient care, and their data were anonymised before being entered into a computer (9). Several paper from the same hospitals were at that time published, and the Ethiopian health authorities did not require ethical approval during that period [7].

## **Results**

154 childhood cancers were recorded. The age and sex distribution as well as the relative ratio frequencies are listed in Table 1.

Table 2 shows an increase in the percentage of childhood cancers to total numbers of cancers registered from 4.3 % to 15 % during different time periods.

**Table 1** The age, and sex distribution, and relative ratio frequencies among childhood cancers in southern Ethiopia.

ICD	Site	Age (in years) and sex distribution					Total	%	
		0-4	5-9	10-14	Boys	Girls			NR
140-5	Buccal cavity			1		1	1	0.6	
153	Colon	1		1		1	2	1.3	
155	Liver	1	1		2	1	2	1.3	
170	Bone	1		2	1	3	3	1.9	
171	Soft tissue sarcoma	4	4	6	10	3	14	9.0	
172	Melanoma			1	1		1	0.6	
182	Uterus	1				1	1	0.6	
183	Ovary	1		1		2	2	1.3	
186	Testes	2		1	3		3	1.9	
187	Other male		1		1		1	0.6	
188	Bladder	1	1	1	2	1	3	1.9	
189	Kidney	10	1		5	6	11	7.1	
190	Eye	37	7		23	21	44	28.4	
193	Thyroid	1		2	2		3	1.9	
196-199	Secondary Deposits	5	6	3	7	7	14	9.0	
200	Lymphosarcoma	7	1	2	8	2	10	6.5	
200.2	Burkitt's Lymphoma	5	12		13	4	17	11.0	
201	Hodkin's Disease	8	8	5	18	2	21	13.5	
203-9	Blood		1	1	2		2	1.3	
Total		85	43	27	98	55	2	155	100

NR: Sex not recorded

**Table 2** Childhood cancers registered during different time periods.

Time-period	Number child cancers	Total cancers	%
1963-1967	7	67	4.3
1968-1972	11	158	7.0
1973-1977	33	314	10.5
1978-1982	61	530	11.5
1983-1986	42	376	15.0

% : Childhood cancers as percentage of total cancers .

## Discussion

The extent of bias involved in the data can only be assessed if the true distribution of cancers in southern Ethiopia were known. Table 11 indicate an apparent increase in childhood cancers during the 24-year observation period. A similar increase has also been reported from Addis Ababa [5]. This is, however, probably due to an increase in the number of children presenting to the hospital but may also be due to an increased awareness of childhood cancers among physicians in a tropical environment .

Generally deep-seated tumours are under-represented in proportional rate surveys [8, 9]. From this study, an absence of brain tumours is noted. This is due to lack of diagnostic and neurosurgical facilities in southern Ethiopia. Furthermore, leukaemia, which are among the most common malignancies among children including Africa [1, 2], are not included in the present review. Admission data to Sidamo Regional Hospital during the year 1985/86 show that leukaemia constitute 0.15 % of admissions among children. This figure is comparable to that reported from Addis Ababa where 0.18% of admissions were due to leukaemia (calculated from Ahmed's data, see reference [5]) .

The male to female ratio differs from cancer type to cancer type. Although our numbers are small, they are in agreement with the sex ratio of larger studies and with regard to the ratio of cancer types such as Hodgkin's Disease, non—Hodgkin's lymphoma ( including Burkitt's lymphoma), kidney and eye tumours [2].

Due to the evident bias in the data, only general conclusions can be drawn from this study of solid tumour relative ratio frequency. Table I indicate that retinoblastomas are among the most common childhood malignancies in southern Ethiopia. As it is a superficial tumour, the true incidence may be less that indicated in Table 1 [7]. This incidence of this tumour has, however, from other African countries and India been found to be greater than in other parts of the world [2].

Hodgkin' s Disease is common among children in southern Ethiopia, as has been reported from Addis Ababa and other African countries [2, 5]. This differs however, from that of Europe and North America where Hodgkin's Disease is regarded as a tumour of young adults. The non—Hodgkin' s lymphoma represent a heterogenous group of tumours, with Burkitt's Lymphoma being the larger group. A previous report from southern Ethiopia have demonstrated that the clinical presentation of Burkitt t s lymphoma is different from that in the " Lymphoma belt" of Africa. Abdominal tumours dominated in Sidamo, while jaw tumours are more frequently observed in endemic areas[4]. The worldwide incidence of Wilm's tumour, with the exception of Japan, is relatively constant, hence it is used as an index tumour against which others are compared [1]. The incidence of Burkitt' s Lymphoma has from southern Ethiopia been estimated as slightly larger than that of Wilm's Tumour

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