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MALIGNANT DISEASES IN JOS: A FOLLOW UP

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Abstract
Background: Cancer non-communicable disease was believed to be rare in the tropics. With gradual adoption of western life style, malignant tumours have continued to be a significant cause of morbidity in our enviroment. The past decade has witnessed increased rate of cancers in various centers in Nigeria. This is as a result of campaign mounted by Nigeria cancer society and more health centers have established oncology units there by facilitating better management for these patients.
Methods: Records of all cancers in the department of Pathology were retrospectively examined over a period of 15 years. The information was broken into two 1985-1994 and 1995-2002.This period correspond with the time which cancer society and the Teaching Hospital started free cancer screening programmes.
Results: There was over 53% increase in the proportion of cancers between 1995-2002. The commonest cancers were that of cervix, Non-Hodgkin's lymphoma, and breast in that order, between 1985-1994. In 1995-2002 the commonest cancers were breast, cervix, prostate, and Non- Hodgkin's lymphoma in that order.
Conclusion: There will be relative increase of cancer in our environment as communicable diseases are gradually being treated and eradicated.
Establishment of more oncology units in our tertiary health centers will certainly prolong the life of the patients and improve their quality of life.

Key words: Cancer, epidemiological, follow up, oncology centre

Introduction

Cancer one of the non- communicable diseases was once believed to be rare in the tropics .Early studies in these regions showed that the incidence of cancer is less than half of that in developed nations. [1, 2] Cancer incidences differ in pattern of distribution between developed and developing nations. Even within the same country there is variation in the distribution pattern. [3 - 5] In America and Europe statistics has shown that there is variation in cancer pattern between migrants to America and their indigenous counters part. The reason for this variation has been attributed to changes in life style and exposure to new environmental agents responsible for the carcinogenic changes. [4]

The commonest cancers in developed nations of America and Europe are, cancers of lungs in both sexes ,breast prostate, skin, urinary bladder, while the commonest cancers in developing countries include non –Hodgkin's lymphoma in both sexes , liver, breast, cervix, prostate, and connective tissue cancers. [1 – 5] The cause of cancer still remains obscured, however the risk factors involved in various site shows that geographical, genetic and social factors may act singly or in concert in the causation of cancer.

Lung cancer is a leading cause of cancer death in developed nations, and is reported to be low in developing nation of Africa. Skin cancer is related to ultraviolet light injury to non-pigmented skin in Europe and America in Nigeria and other developing countries chronic ulcers mostly on the lower limbs are responsible for squalors cell carcinoma of the skin. [5, 6] Liver cell carcinoma is the commonest visceral carcinoma in the tropics and occurs in the younger age group. This cancer is associated with early infection with hepatitis B virus, while alcoholism and hepatitis c virus is closely linked with the cancer in Europe and America. [3 – 5] Cancer of the cervix still remains the commonest cancer in females a situation that is not found in America and Europe, this because of routine screening program of the cancer. [5, 7] Prostate cancer is the commonest male genital cancer

world wide and is more prevalent .in blacks than whites. [8, 9] Breast cancer is the commonest cancer in female worldwide and in the tropics it appears a decade earlier than in Europe and America. [10 – 12] Colon cancer was once believed to be rare in the tropics, but recent studies from Africa show that it is common and occurs in younger age groups. [13 - 16]

The purpose of this study was to examine the changing pattern of cancer in Jos university teaching hospital. from 1985 - 2002 and the implications for health planning.

Materials and Methods

Jos university teaching hospital is located in the north central Nigeria and has a cancer registry in the department of pathology. The department receives surgical specimens from the states of Bauchi, Benue, Taraba, Nassarawa, Kaduna and Plateau. The study was in 2 parts; records of cancers seen from 1985-1994, and 1995-2002.

Results

Total of 32,200 specimens were received and diagnosed from 1985-2002. Of this 4,686 were diagnosed as cancer, accounting for 14.6% of all diagnoses. The total number of cancer from 1985-1994 was 1,834 and from 1995-2002 was 2,813 giving an increase of 56.6%. From 1995-2002 there were a total of 1,162 cancers found in males and 1,657 in females (M:F = 0.7:1)

From 1985-1994 (table 1) the commonest five cancers were that of cervix, non-Hodgkin's lymphoma, breast, liver and prostate. The first five commonest cancers from 1995-2002 in order of frequency were breast, cervix, prostate, non-Hodgkin lymphoma and liver respectively.

The commonest cancers in males (table 2) included non-Hodgkin's lymphoma, prostate, liver and colorectal cancer. The commonest cancers in females (table 3) were breast cervix, non-Hodgkin's lymphoma, non-melanoma skin cancer and cancer of uterus/tubes.

Table 1: Common malignant tumours and their relative frequency

Site	1985 – 1994 No.	%	Position	1995 – 2002 No.	%	Position
Cervix	262	14.3	1	524	17.7	2
Breast	217	11.8	3	528	18.6	1
Liver	120	6.5	4	203	7.2	5
Prostate	105	5.7	5	225	7.9	3
Skin without melanoma	102	5.6	6	116	4.1	8
Non-Hodgkin's lymphoma	221	12.1	2	208	7.4	4
Stomach	59	3.2	12	68	2.4	11
Tissue	69	3.8	8	128	4.6	7
Urinary bladder	65	3.5	10	70	2.5	10
Kidney	40	2.2	16	48	1.7	14
Eye	42	2.3	15	48	1.7	14
Thyroid	45	2.5	14	50	1.8	13
Melanoma	51	2.8	13	68	2.4	11
Leukemia	60	3.3	11	57	2.0	12
Ovary	35	1.9	16	43	1.5	16
Testis	15	0.8	21	13	0.5	18
Bones	21	1.1	19	48	1.7	14
Colorectal	83	4.5	7	158	6.5	6
Ear, nose and throat	18	0.9	20	33	1.2	17
Eosophagus	10	0.5	22	18	1.6	15
Hodgkin's lymphoma	33	1.8	17	43	1.5	16
Uterus/fallopian tubes	42	2.3	15	48	1.7	14
Oral cavity	66	3.6	9	73	2.6	9
Burkitt's lymphoma	22	1.2	18	13	0.5	18
Pancreas	9	0.4	23	11	0.4	20
Lower respiratory tract	22	1.2	18	21	0.7	17
Total	1834			2813	100	

Table 2: Relative frequencies of most common primary cancers in males and their position

Type	1985 – 1994 No.	%	Position	1995 – 2002 No.	%	Position
Non-Hodgkin's lymphoma	132	17.5	1	108	11.2	2
Prostate cancer	105	14.0	2	225	19.4	1
Liver cancer	89	11.8	3	122	10.5	3
Colorectal cancer	47	6.2	4	88	7.5	4
Skin without melanoma	47	6.2	5	58	4.9	6
Oral cavity	45	6.0	6	42	3.6	8
Stomach	41	5.4	7	38	3.3	9
sarcoma	37	4.9	8	70	6.0	5
Urinary bladder	32	4.2	9	48	4.1	7
Eye	23	3.0	10	30	2.6	10

Table 3: relative frequency of most common primary cancer in female

Type	1985 – 1994 No.	%	Position	1995 – 2002 No.	%	Position
Cervix	262	24.8	1	524	32.3	1
Breast	211	20.0	2	502	30.9	2
Non-Hodgkin's lymphoma	89	8.43	3	78	4.8	3
Skin without melanoma	55	5.2	4	48	2.8	7
Uterus/tubes	42	3.9	5	73	4.6	4
Colorectal cancer	36	3.4	6	70	4.3	5
Leukaemia	35	3.3	7	38	2.3	9
Thyroid	33	3.2	8	42	2.6	8
Urinary bladder	34	3.2	9	27	2.1	10
Connective tissue sarcoma	33	3.1	10	58	3.6	6

Note: No. of female cancer = 1621 (1995-2002)

Discussion

The study of cancer pattern in population can contribute in determining causes and cause related risk factors and strategies for cancer prevention and cure. We have undertaken the analysis of cancer pattern in Jos university teaching hospital. Previous study in this center has revealed that non-Hodgkin's lymphoma was the commonest cancer in both sexes. [5] The second category of analysis has shown an increased in the number of specimens by about 53.5%. This marked increased in less than a decade from previous, study is largely due to the mounted campaign by Nigeria cancer society, increased medical center in all the neighbouring states and recently free cancer screening programmes for breast and cervical cancers in our health center.

Cancer being a worldwide public health problem shows geographical and social variation .Even within the same region there are local variation. In the present study, the top most cancers were breast, cervix, non-Hodgkin's lymphoma, and liver, prostate and colon cancers. This study is similar to that of Ibadan cancer registry study and in contrast to what is obtained in America and Europe where the commonest cancers are of lung, breast, prostate, skin, urinary bladder and colon. [3-6, 11-16]

From the two-study period prostate cancer has over taken non-Hodgkin's lymphoma as the most frequent cancer. In Ibadan prostate cancer has over taken liver cancer which previous study had shown that it was the most frequent cancer in males. [5] This in contrast to what obtains in Europe and American countries, where the commonest cancer in males is reported to be that of prostate , lung, and colorectal cancer.(4). However, prostate cancer has been reported to be on the increase as seen in some of the Nigeria Teaching Hospital. [8, 9]

Table 3 show relative frequency of female cancer in Jos university teaching hospital in contrast to

university college hospital Ibadan, in both cases cancer of breast and cervix were the commonest however strikingly absent in Jos university teaching Hospital top cancers were ovarian and Bukkitt's lymphoma as it is seen in Ibadan. This local variations can be attributed to the fact Ibadan is one of the few referral centers with radiotherapy facilities in Nigeria. It is therefore likely that other center refer cancer patients for radiation therapy. Cancer of the cervix is preventable and has largely been eliminated in develop nations of America and Europe because routine screening programmed. In Nigeria cancer of cervix still remains commonest gyneacological malignancy. [4, 7] Of recent there has been an upsurge of cancer of cervix in our center this is because of free cancer screening programmed. The cause of cancer of cervix is largely attributed to transmissible agents called human pappiloma virus sero types 16, 18,32,33,35. [4, 5, 7]

Prostate cancer has emerged as leading cancer among Africans, African Americans and also the leading male genital cancer world wide. [5, 8, 9] Prostate cancer occurs early in blacks and the incidence increases with advancing age. Several studies have shown that the risk factors include advancing age, positive family history, and high dietary fat intake. The most consistent finding is the high levels of testosterone concentration. [9] The mean age presentation was 60.5years in Jos, 67years in Ibadan, 71.4years in Kenya. [3, 5, 8, 9]

Breast cancer has become the most common cancer among women. [3, 4, 9 – 12] Previous studies in most African countries have shown an increased incidence in a population that was thought to have enjoyed low incidence. In a case controlled study conducted in Ibadan (U C H) showed that females who were tall heavier and, obese are more likely to develop breast cancer than thin skinny females of the same age. [12] The peak age incidence in Nigeria is being reported to be between 45- 50 years in contrast to what obtains in Europe and America where it is reported to be between 65-75years.Liver cancer is the commonest visceral cancer in Africa. The pathogenesis is closely associated with hepatitis B virus which is endemic in Africa and Asia. [3 - 5]

Colorectal cancer was once believed to be rare in Africa, but recent study in Nigeria and other African countries has shown that colon cancer is not only common but occurs in younger age group. [13 – 16] Risk factors associated with colon cancer include familial adenomatous polyp, chronic ulcerative colitis, and high fat diet with low vegetable contents. [4] Some centres in the tropics have demonstrated the presence of schistosoma ova in colon cancer; whether there is causal relationship is yet to be determined. [13 - 16]

The concept of carcinogenesis revolves around group of cellular genes responsible for growth and differentiation. These cellular genes are called variably as proto-oncogenes, cancer suppressor genes, genes that regulate cell cycle and genes that repair DNA damage. Alteration in the functions of these genes may arise from mutational agents such as radiation, chemical carcinogens, hereditary factors and Infections.

In conclusion this changing pattern of cancer in Jos University Teaching Hospital may reflect a response to various campaigns to create awareness on cancer. Free cancer screening programmes and the establishment of oncology unit by the teaching hospital has also contributed to the increase in the proportion diseases seen in our Hospital. This therefore calls for proper cancer surveillance and allocation more resources to support these patients.

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