SURGICAL ONCOLOGICAL MORTALITIES: A FIFTEEN YEAR ANALYSIS IN KORLE BU TEACHING HOSPITAL, GHANA

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Abstract

Introduction: Cancer is the leading cause of death in economically developed countries and second leading cause of death in developing countries. Despite the high cancer mortality rates in developing countries the contribution of cancer to death in surgical practice has not been determined in our institution. An analysis of cancer deaths in the department of surgery at the Korle Bu Teaching Hospital is presented.

***Methods*:** All cases of cancer deaths from 1st January 1998 to 31st December 2013 were retrieved and retrospectively reviewed. The sex, age, primary tumour site, period of admission prior to death, cause of death and post-mortem findings formed the primary data for the analysis.

Results: There were 113,960 admissions in the surgical department of KBTH over the fifteen year period, with 4,979 overall deaths, of which 1,637 were cancer mortalities, representing 32.85% of the total mortality and a cancer mortality rate of 1.44%. The commonest cancer deaths were from breast (14.48%), prostate (12.52%), colorectal (9.65%), gastric (8.74%) and pancreas (8.67%). Brain tumours and Wilm's tumours accounted for 37% and 21% respectively of cancer mortalities in the paediatric age group. Cancer mortalities in the adolescent age group showed many cases of nasopharyngeal cancers (15.85%). Lung cancers accounted for only 1.16% of cancer mortalities in the institution.

***Conclusion*:** Cancer accounted for a third of the deaths in the surgical department of KBTH with breast and prostate cancers being the leading overall causes of cancer deaths. Deaths due to lung cancer were low contrasting with the world trend.

Key Words: Solid tumours, deaths, breast, prostate, gastrum, Accra

Introduction

Communicable diseases were the main causes of death around the world for several years and life expectancy was low due to repeated waves of epidemics. The development of vaccination, antibiotics and improvement in sanitation, witnessed emergence of non-communicable diseases (NCDs) causing havoc in industrialized countries, a situation that led to initiation of strong public health programmes. These diseases which are associated with economic development include cardiovascular diseases, cancer and diabetes. The scourge of NCDs is currently global, with an increasing trend in developing countries where, the rapid change in disease pattern brings along an additional burden to that of dealing with infective diseases in a poor environment characterized by ill-health systems. Cancer incidence is rising rapidly in many developing nations.

Cancer is the leading cause of death in economically developed countries and the second leading cause of death in developing countries.[1] In 2012 there were 14.1 million new cancer cases, 8.2 million cancer deaths and 32.6 million people living with cancer in the world.[2] Of these, 57% of the new cases, 65% of the cancer deaths and 48% of the five year prevalent cancer cases were in the less developed regions of the world.[2] The cancer burden in health care is estimated to increase over the years and this will challenge developing countries where a disproportionately higher rise in incidence is anticipated.[3]

The aforementioned notwithstanding, there is a dearth of data on cancer incidence, prevalence and mortality rates in less developed regions as a result of limited finances, lack of resources and lack of political will. The absence of cancer registries has led to estimations of cancer prevalence using combinations of country life tables, cause of deaths models, regional cause of death patterns and WHO and UNAIDS programme estimates for major cancers. Data from institutional reviews, case series, mortality records, hospital based cancer registries and a few population based cancer registries have been very useful in this process.[4, 5]

Surgery is critical in the treatment of solid tumours and many such cases are seen by the surgeon. Up to 80% of cancers seen in hospitals in the developing world are advanced and surgery is normally for palliation.[6] Cancer mortality rates are therefore high, yet the contribution of cancer to deaths in surgical practice is not determined in our institution.

In this report an analysis of cancer deaths, **defined as deaths with cancer as the underlying cause,** among surgical patients seen at the Korle Bu Teaching Hospital over a fifteen year period is presented, providing the patterns of the cancers and the proportions of mortality due to cancer. Such summary

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data provides useful information for both advocacy and policy for addressing issues concerning cancer care and prevention in the population served.

Materials and Methods

All deaths that occurred in the Department of Surgery, Korle Bu Teaching Hospital (KBTH) over a 15year period, from January 1998 to the end of December 2013, were retrieved from the mortality ledgers and reviewed retrospectively.

All cases of cancer deaths, **in the department of surgery** were entered into a database using excel sheet and later transferred into SPSS version 20 for analysis.

Information collected on each case included, age, sex, date of admission and date of death and hence duration of admission, site of primary tumour, other associated diagnosis on admission, clinical cause of death and post-mortem findings.

The primary tumours were classified according to the anatomical site of the tumour except for histological types such as melanomas, lymphomas and leukaemia. The ages were grouped according to the International Agency for Research on Cancer (IARC) Lyon, France) for cancer reporting namely 0-14, 15-24, 25-34, 35-44, 45-54, 55-64, ≥65.

The cases were analysed according to sex, age distribution for all ages, duration of admission, the primary tumour sites overall and primary tumour site in relation to the sex and age. The annual cancer mortalities over the 15year period were also analysed.

Descriptive statistics were computed including frequencies, means, median, standard deviation and inter-quartile ranges.

Results

There were a total of 113,960 patients admitted in the Surgical Department of Korle Bu Teaching Hospital, between the 1st of January 1998 and the 31st of December 2013 with 4,979 overall deaths during this period of which 1,637 were cancer mortalities representing 32.88% of the total mortality and a cancer mortality rate of 1.44%; Table 1.

688 (42.03%) were female and 947 (57.85%) male cancer deaths giving a male: female cancer death ratio of 1.4:1.

The mean age for females was 52years (SD 18.59) and that of males 55years (SD 19.96). The median age for females was 53years (IQR = 42-66 years) and 58years (IQR = 44-70 years) for males. Ages were not stated for two females and two males. Table 2 summarizes the proportions of cancer deaths occurring in the various developmental milestones of man. Cancer mortalities were low before middle age but almost doubled from middle age onwards.

Mean and median length of hospital stay for all patients who died due to cancer during the period under review were 15days and 10days respectively (IQR = 4-20 days).

Table 1: Yearly or annual proportion of cancer deaths

Year	Total No. of admis-sion	Total No. of all deaths	Total No. of cancer deaths	% Cancer cause of death
1998	1563	43 (2.75%)	11(0.70%)	25.58%
1999	4882	175(3.58%)	78(1.60%)	44.57%
2000	2985	97(3.25%)	20(0.67%)	20.62%
2001	8222	344(4.18%)	121(1.47%)	35.17%
2002	7052	324(4.59%)	112(1.59%)	34.57%
2003	15261	296(1.94%)	91(0.60%)	30.74%
2004	6533	279(4.27%)	91(0.78%)	32.62%
2005	9237	465(5.03%)	108(1.17%)	23.23%
2006	6931	330 (4.76%)	119(1.72%)	36.06%
2007	6148	300 (4.88%)	108(1.76%)	36.00%
2008	9481	490 (5.17%)	154(1.62%)	31.43%
2009	4612	256 (5.55%)	98 (2.12%)	38.28%
2010	11024	486 (4.41%)	143 (1.30%)	29.42%
2011	4747	255 (5.37%)	88 (1.85%)	34.51%
2012	5819	336 (5.77%)	132 (2.27%)	39.29%
2013	9463	503 (5.27%)	163 (1.72%)	32.41%
Total	**113960**	**4979 (4.37%)**	**1637 (1.44%)**	**32.88%**

Table 2: Age distribution of cancer deaths

Age group	No. of cancer deaths	Mean age
0-14	81	7.7
15-24	82	19.7
25-34	98	30.2
35-44	186	39.7
45-54	302	49.6
55-64	344	59.3
>65	541	73.4
unknown	3	0
Total	**1637**	

Table 3 summarizes the overall cancer mortalities. The commonest causes of cancer deaths were breast 237 (14.48%), prostate 205 (12.52%), colorectal (colon 96 and rectum 62) 158 (9.65%), gastric 143 (8.74%) and pancreatic cancer 142(8.67%).

In females, malignancies of breast 229 (33.28%) were the most common cause of deaths, followed by pancreas 68 (9.88%), and colorectum (colon40 and rectal28) 68 (9.74%) as depicted in Table 3

Prostate cancer was the most frequent cause of cancer deaths in male, 205 (21.60%), followed by gastric 96 (10.12%), and colorectal cancer (colon 56 and rectal 34) 90(9.48%); Table 3

There were 81 paediatric (<15years old) cancer mortalities, of which 48 were males and 33 were females; male to female ratio of 1.45:1. In the paediatric group, overall, the malignancies with the highest mortality were brain tumours (30) followed by Wilm's tumour (17), accounting for 37.04% and 20.99% respectively. The full details of these cancer deaths are depicted in Table 4.

Table 3: Overall cancer deaths; female: male distribution

Cancer type	No. of deaths-overall (%)	No. of deaths female (%)	No. of deaths males (%)
Breast cancer	237 (14.48%)	229 (33.28%)	8 (0.85%)
Prostate cancer	205 (12.52%)	0 (0)	205 (21.65%)
Colorectal cancer	158 (9.65%)	67 (9.74%)	91 (9.61%)
Gastric cancer	143 (8.74%)	47 (6.83%)	96 (10.14%
Pancreatic cancer	142 (8.67%)	68 (9.88%)	74 (7.81%)
*Urinary Bladder cancer	102 (6.23%)	24 (3.49%)	77 (8.13%)
Brain cancer	86 (5.25%)	31 (4.51%)	55 (5.81%)
Hepatocellular cancer	68 (4.15%)	16 (2.33%)	52 (5.49%)
Lymphoma	40 (2.44%)	10 (1.45%)	30 (3.17%)
Oesophageal cancer	38 (2.32%)	13 (1.89%)	25 (2.64%)
*Gall bladder cancer	34 (2.08%)	23 (3.34%)	10(1.06%)
Laryngeal cancer	31 (1.89%)	2 (0.29%)	29 (3.06%)
Sarcoma	28 (1.71%)	12 (1.74%)	16(1.69%)
Nasopharyngeal cancer	25 (1.53%)	4 (0.58%)	21 (2.22%)
Unspecified Intra-abdominal tumour	20 (1.22%)	9 (1.31%)	11 (1.16%)
Lung cancer	19 (1.16%)	7 (1.02%)	12(1.27%)
Wilm's tumour	17 (1.04%)	9 (1.31%)	8 (0.84%)
Cervical cancer	16 (0.98%)	16 (2.33%)	0 (0)
Cholangiocarcinoma	15 (0.92%)	8 (1.16%)	7 (0.74%)
Thyroid cancer	15 (0.92%)	8 (1.16%)	7 (0.74%)
Osteosarcomas	14 (0.86%)	4 (0.58%)	10 (1.06%)
Pelvic cancer	13 (0.79%)	7 (1.02%)	6(0.63%)
Renal cancer	13 (0.79%)	3 (0.44%)	10 (1.06%)
Squamous cell cancer	13 (0.79%)	5 (0.73%)	8 (0.84%)
Cancer of the tongue	11 (0.67%)	6 (0.87%)	5 (0.53%)
Retroperitoneal cancer	10 (0.61%)	6 (0.87%)	4 ()0.42%
Malignant melanoma	8 (0.49%)	6 (0.87%)	2 (0.21%)
0varian cancer	7 (0.43%)	7 (1.02%)	0 (0)
Anal cancer	8 (0.49%)	2 (0.29%)	6 0.63% ()
Small bowel cancer	7 (0.43%)	4 (0.58%)	3 (0.32%)
Tonsillar cancer	7 (0.43%)	0 (0)	7 (0.74%)
Parotid cancer	6 (0.37%)	3 (0.44%)	3 (0.32%)
Leukemia	5 (0.31%)	2 (0.29%)	3(0.32%)
Testicular cancer	5 (0.31%)	0 (0)	5 (0.53%)
Multiple myeloma	4 (0.24%)	2 (0.29%)	2 (0.21%)
Mediastinal tumor	4 (0.24%)	0 (0)	4 (0.42%)
Neuroblastoma	2 (0.12%)	1 (0.15%)	1(0.11%)
Orbital cancer	4 (0.24%)	1 (0.15%)	3 (0.32%)
Adrenal cancer	4 (0.24%)	3 (0.44%)	1(0.11%)
Endometrial cancer	3 (0.18%)	3 (0.44%)	0 (0)
Mesenteric tumor	3 (0.18%)	2 (0.29%)	1(0.11%)

The cancer mortalities in the adolescent ages (15-24years) showed many cases of nasopharyngeal cancers 13 (15.85%); Table 4. Colorectal (rectal 7; colon 6) cancers 13(15.85%), followed by lymphomas 7 (8.54%), and osteosarcomas 6 (7.32%) were the next most common cancer deaths. They were made up of 51 males and 31 females giving a ratio of 1.65:1.

Continuation of Table 3

Cancer type	No. of deaths-overall (%)	No. of deaths female (%)	No. of deaths males (%)
Maxilla cancer	3 (0.18%)	1 (0.15%)	2 (0.21%)
Spinal tumor	4 (0.24%)	1 (0.15%)	3 (0.32%)
Neurofibroma	2 (0.12%)	0 (0)	2 (0.21%)
Oropharyngeal cancer	2 (0.12%)	0 (0)	2 (0.21%)
Uterine cancer	2 (0.12%)	1 (0.15%)	1 (0.11%)
Neuroendocrine tumor	2 (0.12%)	2 (0.29%)	0 (0)
Other cancers	32 (1.95%)	13 (1.89%)	19 (2.01%)
Total	**1637 (100%)**	**688 (100%)**	**947 (100%)**

*Gender was not indicated for 2 mortalities; Gall bladder cancer (1) and urinary bladder cancer (1).

Table 4: Distribution of Cancer deaths by developmental age groupings

Cancer type	Overall n (%)	0 - 14yrs n (%)	15 – 24yrs (%)	25 – 44yrs (%)	45 – 64yrs (%)	≥ 65yrs (%)
Breast cancer	237(14.48)	-	4 (4.87)	75 (26.41)	124 (19.20)	34 (6.28)
Prostate cancer	205 (12.52)	-	1 (1.22)	3 (1.06)	56 (8.67)	145 (26.80)
Colorectal cancer	158 (9.65)	1 (1.23)	13 (15.85)	30 (10.56)	51 (7.89)	63 (11.65)
Gastric cancer	143 (8.74)	-	1 (1.22)	19 (6.69)	77 (11.92)	46 (8.50)
Pancreatic cancer	142 (8.67)	-	1 (1.22)	12 (4.23)	60 (9.29)	69 (12.75)
Urinary Bladder cancer	102 (6.23)	2 (2.47)	2 (2.44)	25 (8.80)	47 (7.28)	26 (4.81)
*Brain cancer	86 (5.25)	30 (37.04)	5 (6.10)	18 (6.34)	24 (3.72)	8 (1.48)
Hepatocellular cancer	68 (4.15)	3 (3.70)	4 (4.87)	24 (8.45)	25 (3.87)	12 (2.22)
*Lymphoma	40 (2.44)	5 (6.17)	9 (10.98)	12 (4.23)	10 (1.55)	3 (0.55)
Oesophageal cancer	38 (2.32)	-	-	1 (0.35)	23 (3.56)	14 (2.59)
Gall bladder cancer	34 (2.08)	-	-	1 (0.35)	15 (2.32)	18 (3.33)
Laryngeal cancer	31 (1.89)	1 (1.23)	-	4 (1.41)	14 (2.17)	12 (2.22)
Sarcoma	28 (1.71)	6 (7.41)	3 (3.66)	6 (2.11)	7 (1.08)	6 (1.11)
Nasopharyngeal cancer	25 (1.53)	-	13 (15.85)	4 (1.41)	5 (0.77)	3 (0.55)
Unspecified Intr Abd tumor	20 (1.22)	2 (2.47)	2 (2.44)	3 (1.06)	7 (1.08)	6 (1.11)
Lung cancer	19 (1.16)	-	1 (1.22)	5 (1.76)	7 (1.08)	6 (1.11)
Wilm's tumor	17 (1.04)	17 (20.99)	-	-	-	-
Cervical cancer	16 (0.98)	-	-	-	8 (1.24)	8 (1.48)
Cholangiocarcinoma	15 (0.92)	1 (1.23)	-	2 (0.70)	6 (0.93)	6 (1.11)
Thyroid cancer	15 (0.92)	-	-	1 (0.35)	6 (0.93)	8 (1.48)
Osteosarcoma	14 (0.86)	1 (1.23)	6 (7.32)	3 (1.06)	2 (0.31)	2 (0.37)
Pelvic cancer	13 (0.79)	-	1 (1.22)	2 (0.70)	5 (0.77)	5 (0.92)
Renal cancer	13 (0.79)	2 (2.47)	2 (2.44)	4 (1.41)	2 (0.31)	3 (0.55)
Squamous cell cancer	13 (0.79)	-	-	5 (1.76)	7 (1.08)	1 (0.18)
Cancer of the tongue	11 (0.67)	-	1 (1.22)	1 (0.35)	6 (0.93)	3 (0.55)
Retroperitoneal cancer	10 (0.61)	1 (1.23)	1 (1.22)	2 (0.70)	3 (0.46)	3 (0.55)
Malignant melanoma	8 (0.49)	-	-	-	5 (0.77)	3 (0.55)
Ovarian cancer	7 (0.43)	1 (1.23)	1 (1.22)	1 (0.35)	3 (0.46)	1 (0.18)
Anal cancer	8 (0.49)	-	-	1 (0.35)	5 (0.77)	2 (0.37)
Small bowel cancer	7 (0.43)	-	-	1 (0.35)	3 (0.46)	3 (0.55)
Tonsillar cancer	7 (0.43)	-	-	-	4 (0.62)	3 (0.55)
Parotid cancer	6 (0.37)	-	-	1 (0.35)	4 (0.62)	1 (0.18)
Leukemia	5 (0.31)	1 (1.23)	2 (2.44)	-	1 (0.15)	1 (0.18)
Testicular cancer	5 (0.31)	-	3 (3.66)	1 (0.35)	-	1 (0.18)

Continuation of Table 4

Cancer type	Overall n (%)	0 - 14yrs n (%)	15 – 24yrs (%)	25 – 44yrs (%)	45 – 64yrs (%)	≥ 65yrs (%)
Multiple myeloma	4 (0.24)	-	-	1 (0.35)	2 (0.31)	1 (0.18)
Mediastinal tumor	4 (0.24)	-	-	3 (1.06)	-	1 (0.18)
Neuroblastoma	2 (0.12)	1 (1.23)	-	-	-	1 (0.18)
Orbital cancer	4 (0.24)	1 (1.23)	-	1 (0.35)	1 (0.15)	1 (0.18)
Adrenal cancer	4 (0.24)	-	-	3 (1.06)	1 (0.15)	-
Endometrial cancer	3 (0.18)	-	-	-	1 (0.15)	2 (0.37)
Mesenteric tumor	3 (0.18)	-	2 (2.44)	-	-	1 (0.18)
Maxilla cancer	3 (0.18)	-	-	-	3 (0.46)	-
*Spinal tumor	4 (0.24)	-	1	1 (0.35)	1 (0.15)	-
Neurofibroma	2 (0.12)	-	1 (1.22)	-	-	1 (0.18)
Oropharyngeal cancer	2 (0.12)	-	-	-	2 (0.31)	-
Uterine cancer	2 (0.12)	-	-	1 (0.35)	-	1 (0.18)
Neuroendocrine Tumor	2 (0.12)	-	-	-	-	2 (0.37)
Other cancers	32 (1.95)	5 (6.17)	2 (2.44)	7 (2.46)	13 (2.01)	5 (0.92)
Total	**1637 (100)**	**81 (100)**	**82**	**284**	**646**	**541**

*Age not stated for 3 mortalities with brain tumours (1), lymphomas (1) and spinal tumours (1)

The cancer mortalities in the adolescent ages (15-24years) showed many cases of nasopharyngeal cancers 13 (15.85%); Table 4. Colorectal (rectal 7; colon 6) cancers 13(15.85%), followed by lymphomas 7 (8.54%), and osteosarcomas 6 (7.32%) were the next most common cancer deaths. They were made up of 51 males and 31 females giving a ratio of 1.65:1.

Table 4 also shows the cancer mortalities in young adults (25-44 years) in whom 284 cancer mortalities were recorded. Of this, there were 148 males and 136 females, ratio of 1.1:1. These mortalities were mainly 75 (26.32%) cases of breast cancer, 30 (10.53%) colorectal cancers, 25 (8.80%) urinary bladder cancers, 24 (8.45%) hepatocellular cancers, 19 (6.69%) gastric cancers, 18 (6.34%) brain tumors and 12 (4.23%) cases each of pancreatic cancers and lymphoma.

There were 646 mortalities in the middle age group (45-64years) involving 352 males and 294 females; sex ratio of 1.2:1. Table 4 indicates that breast cancer was the predominant cancer in this group accounting for 124 (19.20%) of the mortalities; gastric cancers were 77 (11.92%), pancreatic 60 (9.29%), prostate 56 (8.67%), colorectal (colon29; rectum 22) 51 (7.89%) and 46 (7.12%) urinary bladder cancers.

In the elderly, 65years and older, 541 cancer mortalities occurred in 347 males and 194 females. In this predominantly male age group (M: F ratio 1.8: 1) prostate cancer was the leading cause of death accounting for 145 (26.80%) cancer mortalities followed by pancreatic 69 (12.75%), colorectal (colon - 45; rectal - 18) 63 (11.65%), gastric 46(8.50%) and 6.28% (34) breast cancers as detailed in Table 4

Cancer mortalities were highest in the seventh decade 338 (20.65%) followed by the sixth 329 (20.10%) and eighth 279 (17.04%) decades. Cancer mortality was

Table 5: Secondary diagnosis

Secondary diagnosis	Number of deaths	%
None	1005	61.39%
Severe anaemia	129	7.88%
Obstructive jaundice	94	5.74%
Intestinal obstruction	68	4.15%
Sepsis	37	2.26%
Respiratory failure	29	1.77%
Chronic renal failure	29	1.77%
Hypertension	23	1.41%
Diabetes mellitus	17	1.04%
Upper gastrointestinal bleeding	16	0.98%
Obstructive uropathy	15	0.92%
Lower gastrointestinal bleeding	14	0.86%
Obstructive hydrocephalus	13	0.79%
DVT	13	0.79%
Gastric outlet obstruction	11	0.67%
Haematuria	11	0.67%
Pulmonary metastasis	10	0.61%
Heart failure	10	0.61%
Urosepsis	10	0.61%
Pathological fracture	8	0.49%
HIV Infection	8	0.49%
Hemoperitoneum	8	0.49%
Pulmonary embolism	7	0.43%
Liver failure	6	0.37%
Anastomotic leakage	6	0.37%
Paraplegia	5	0.31%
Cerbrovascular accident	5	0.31%
Dysphagia	5	0.31%
Malnutrition	5	0.31%
Enterocutaneous fistula	4	0.24%
others	24	1.47%

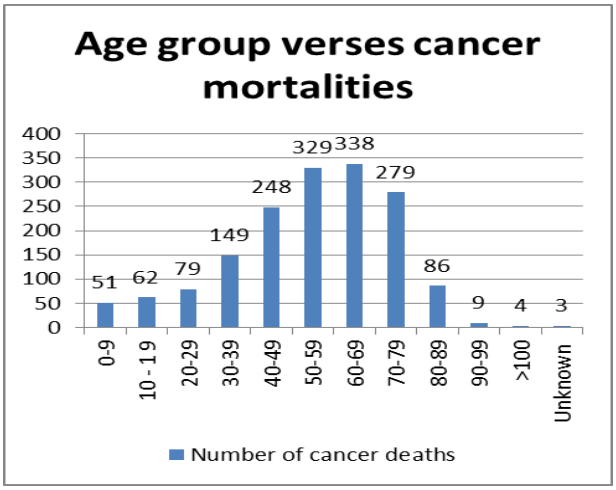

Fig 1: Age group verses cancer mortalities
Vertical (value) axis – number of cancer deaths
Horizontal (category) axis – age groupings

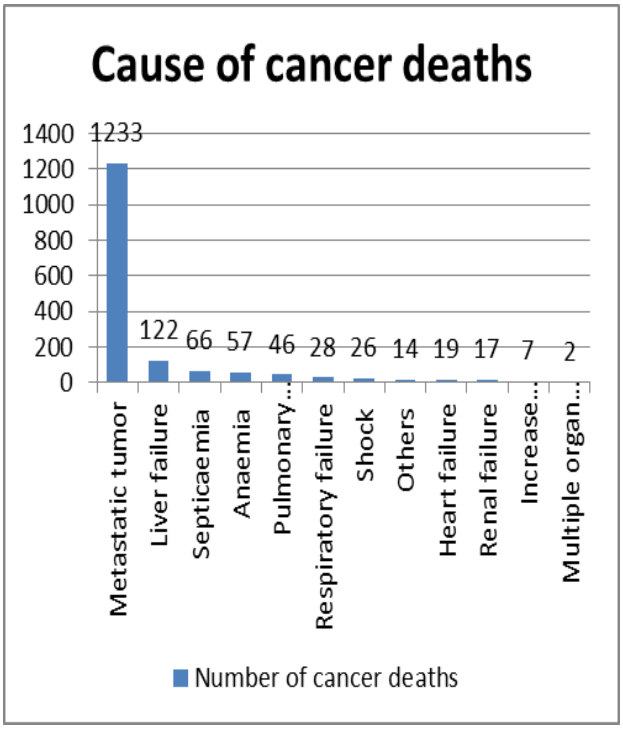

Fig 2: Causes of death
Vertical (value) axis – number of cancer death
Horizontal (category) axis – conditions that cause death

Discussion

Whereas cancer incidence varies greatly all over the world from region to region with up to tenfold difference in some cancers there is less regional variability in its mortality[2]. Any such deference is attributable to differences in availability of resources for treatment and the healthcare seeking behaviour of the population since cancer, when left unattended is invariably fatal.

Out of a total of 113,960 admissions there were 4,979 (4.4%) mortalities in the fifteen year period of which there were 1,637 (1.44%) cancer mortalities. The annual rates of cancer deaths remained fairly constant, fluctuating between 0.6% – 2.27% cancer mortality and 20.62% - 44.57% cancer cause of deaths, with a mean of 32.88%; Table 1. This makes cancer the leading cause of deaths over the infective septic surgical conditions: typhoid perforation, diabetic infections, peptic ulcer perforation, burns and traumatic injuries, which are still significant contributors to deaths in our practice. There is a comprehensive cancer care system at the Korle-Bu Teaching Hospital with multi-disciplinary cancer teams established. The activities of these teams have improved the quality of cancer care but not reduced cancer deaths because these teams are still young, patients present with advanced cancer and are unable to pay for treatment, which is very expensive and paid for out of pocket in our institution. With the exception of only two cancers (breast and cervical) whose treatment are **partially** covered by the national health insurance scheme, no other cancer is.

The cancer cause of deaths was as low as 3.12% in the first decade of life, rose to 20.65% in the 7th decade but declined thereafter to 0.55% in the tenth (0.24% in the eleventh) decades of life. Cancer incidence is lowest in childhood explaining the low rate, but cancer was a major killer in adults of middle age, 50-79, accounting for over half (57.79%) of the cancer mortalities. The incidence of cancer declines after the 8th decade of life but cancer mortality still remains high at this age.[6] This observation noted in the Western world was not reflected in this study where the mortality due to cancer was lowest after age 80 years. This is as a result of the younger demographic profile of the Ghanaian population, with a small elderly population (≥ 65years) of 4.7% in the country and 3.6% in Accra.[7, 8]

The finding of 42.03% (688) female and 57.97% (949) male cancer mortalities in this study is in keeping with the almost 25% higher worldwide cancer mortality in men over women.[2] This proportion is also similar to that reported earlier from the pathology department of the same hospital which showed that out of a total of 3659 cancer mortalities in the hospital 2008 (54.9%) were males and 1651 (45.1%) females.[9]

The most frequent cancers people died from were breast 14.48% (237), prostate 9.94% (205) and colorectal 9.65% (158). Infections causing cancer are still rampant in Ghana, the prevalence of smoking in Ghana is low (3.8% current smoking and 9.7% ever smoked) in people aged 14 years and older and obesity is found in 35% of Ghanaian women.[10,11] Ghana is transiting into a middle income country and witnessing a rapid increase in urbanization. Urbanization and socioeconomic transformation come with increased access to energy-dense foods and less physical activity and many people will have a positive energy balance

thereby becoming overweight/ obese. These factors are the drivers of cancer and are expected to increase in prevalence over time. An anticipated disproportionate rise in the urban poor population in whom these factors will operate heavily also means that the poor are also more likely to develop and die of cancer due to inability to afford treatment. Strong advocacy to have cancer treatment absorbed by the national health insurance scheme in the country is necessary and urgent.

In females, malignancies of breast were the most common cause of cancer death (33.28%). It was also the commonest cause of cancer deaths from age 25 through to 65 years. In the male population the highest cause of cancer mortality was the prostate 21.60% (205) but this took prominence after 65 years. Breast cancer in women and prostate cancer in men are the most frequent cancers diagnosed in Accra[9] and are both hormone dependent and their incidence influenced by age. With the progressive modest gain in life expectancy among Ghanaians, these cancers will continue to gain prominence. They both have a high cure rate when diagnosed in their early stage and treated effectively. Though not formally operational there is a policy to guide screening for these two cancers in Ghana and people are encouraged to avail themselves for screening when they attain the prescribed age to start screening.

Cancer of the gastro-intestinal tract, stomach and colorectum are next after breast and prostate in causing deaths. Bowel screening has been shown to reduce the risk of dying from bowel cancer by a quarter in people who are screened.[12] Korle-Bu Teaching Hospital runs an open access gastrointestinal endoscopy service. Besides this there are three other similar services provided by parastatal health institutions in the Accra metropolis. Unfortunately screening asymptomatic people for cancer is not practiced and screening of the gastrointestinal track in patients presenting at the endoscopy suit has been opportunistic.

Lung cancer accounted for 19 deaths in this study. This low figure could possibly be because of the relatively low prevalence of smoking among Ghanaian.[10] The ban on smoking in public places in Ghana that has witnessed the collapse of Tobacco producing companies in the country has the potential of reducing the prevalence of smoking further. The low death rate from lung cancer contrasts sharply with the world figures where it is the leading cause of cancer deaths (leading cause in men and second in women) with tobacco being the most important risk factor. Tobacco caused 22% of cancer deaths and 71% of lung cancer deaths in 2000[13] in the world with the highest incidence reported in the USA and Eastern European countries and lowest in Africa, Central and South America, and South Central Asia.[1]

There were 81 mortalities due to cancer in the paediatric age group. The M: F ratio of 1.45:1 is similar to that reported by Segbefia et al of 1.3:1.[14] In this report Lymphomas followed by leukemias were the most common childhood cancers followed by Retinoblastomas and Wilms tumours.[14] CNS tumors were rare, forming 3.4% of childhood cancers. An autopsy study in Korle Bu Teaching Hospital on childhood cancer mortalities placed CNS tumours second after lymphomas.[15]

Their findings contrasted sharply with what is noted in the Western world, e.g. UK, where brain, other CNS and intracranial tumours account for the highest cancer deaths (32%) in childhood.[16] What is found in this study however corroborates what has been report in the United Kingdom with cancer of the brain being the main cause of cancer mortality (37.04%), followed by Wilms tumor.

Nasopharyngeal tumors accounted for most of the cancer mortalities (15.85%) in the adolescent age group (15-24 years) in line with the prevalence pattern of this disease from other studies. Nasopharyngeal cancers were noted to be common in the second decade of life (34.5% of nasopharyngeal cancers were in the second decade) [17], in an institutional review of head and neck cancers in Komfo Anokye Teaching Hospital, Kumasi. It is said to largely affect a relatively young age group. A bimodal age distribution curve has been reported with the first peak in the 15 to 25 year group and another peak from the 60-69 years.[17] Kitcher et al reported a peak incidence of nasopharyngeal cancers in Korle Bu Teaching Hospital to be in the10 -19 year group, with 60.4% of cases being below 40 years.[18]

This study relied on the best available clinical and surgical mortality data available in the hospital over a decade and half and from this the study draws its strength giving a good representation of the surgical cancer mortalities. The study however had a limitation for not being able to incorporate haematological and gynaecological data which could have given complete information on all cancer mortalities in the hospital over the period. This limitation stemmed from the practical difficulty in obtaining that data in our setting.

Conclusion

Cancer mortality was responsible for a significant proportion of the mortalities in surgical practice; accounting for about a third of the deaths. Breast and prostate cancers being the leading overall causes of cancer deaths; whereas breast cancer mortality occurs through the young adult to the elderly age group, mortalities from prostate cancer mainly occur in the elderly. Brain tumours and Wilms tumours were the predominant cancer mortalities in the paediatric age group and nasopharyngeal cancers in adolescents. Breast, colorectal and urinary bladder cancers respectively were the leading cancer mortalities in young adults. In the middle aged group breast, gastric, pancreatic, prostate, colorectal and bladder cancers were the most common. Finally in the male dominated elderly group prostate, pancreatic, colorectal, and

gastric and breast cancers were the predominant cancers. Deaths due to lung cancer were low and contrasted with the world figures where it is the leading cause of cancer deaths in both men and women.

From the findings of this study the following recommendations are made;

1. Operationalization of national screening programmes for breast, prostate, gastric and colorectal cancers.
2. Advocacy for comprehensive coverage of cancer treatment by the national health insurance scheme in Ghana
3. Intensification of public health education on the dangers of lifestyle changes which may arise as the country transits into a middle income country
4. An urgent need for discussion towards revision of curricular in health training institutions in the country to emphasize oncology and for specialized training for the different categories of health care workers in surgical oncology.
5. The need for the creation of institutional, regional of national cancer registries which would better inform policy makers in allocating funds for prevention and treatment as well as research of cancers in our country.

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List of Abbreviations

CNS - Central Nervous System
IARC - International Agency for Research on Cancer
IQR - Inter-quartile Range
M:F - Male: Female
NCDs - Non-communicable Diseases
P.O.Box - Post Office Box
SD - Standard Deviation
SPSS - Statistical Package for the Social Sciences
UK - United Kingdom
UNAIDS - Joint United Nation Programme on HIV/AIDS
USA - United States of America
WHO - World Health Organization

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