Original Article

Treating Malignancy: Four-Year Experience in Internal Medicine Department, BIRDEM General Hospital

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Abstract

Background: Cancer prevalence in diabetic patients in Bangladesh seems to be increasing as case detection of both diseases are far more than before. Till date no statistical data of diabetic patients with malignancy is available in Bangladesh. Treating both diabetes and malignancy in the same patient is challenging and sometimes requires multidisciplinary support. For such cases BIRDEM General Hospital offers supportive facilities including intensive care, chemotherapy, surgical intervention and oncology day care.

Methods: This cross-sectional, observational study was carried out from January 2012 to June 2016 which included cancer patients irrespective of their diabetic status admitted in Internal Medicine Department of BIRDEM General Hospital. With prior informed consent of the patients, data were collected and statistical analysis was done using professional SPSS version 17.0 windows based program.

Results: Total number of cancer patients was 114, whose diagnoses were confirmed by histopathological evidence (biopsy/FNAC), radiology reports and cancer markers, as appropriate. Among them 64 (56.1%) were male and 50 (43.9%) were female patients. Age of most of the patients was between 41-60 years (65, 57%). Mean age was 55.16 years in diabetic group and 44.47 years in non-diabetic group. Glycemic status revealed that most of the patients were diabetic (80, 70.2%). Among other co-morbid conditions, hypertension and ischemic heart disease were predominant (17 and 9 cases respectively). Prevalence of more than one co-morbidites were marked in the diabetic group (33 cases, p value >0.001).

Twenty one categories of malignancies were diagnosed during this study period. Majority of cases were lymphoma (21,18.4%), carcinoma breast (17,14.9%), carcinoma uterus and/or cervix (13,11.4%) and leukaemia (10,8.8%). Common clinical features included palpable lump (21,18.4%), lymphadenopathy (16,14%), anaemia (9,7.9%) and pain (8,7%). The number of patients presenting with multiple signs/symptoms were also significant (32,28.1%).

Most patients were treated with chemotherapy (54,47.4%). Many cases warranted a combined approach (46,40.4%). Treatment response showed good response in 57(50%) cases. In 16 patients (14%) condition deteriorated and death occurred in 8 cases (7%). Even after repeated and empathic counseling we lost follow up of 15 cases (13.2%).

Conclusion: The scenario becomes complicated when a diabetic patient develops malignancy and vice versa. Complications can arise from either spectrum of the diseases. Managing such cases are often challenging and require multi-disciplinary support. Management outcome of these cases so far in Internal Medicine Department, BIRDEM General Hospital shows a promising future.

Key words: BIRDEM; diabetes; experience; malignancy

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Introduction

As a tertiary care hospital, Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) General Hospital is mostly serving diabetic patients with multiple complications. Cancer prevalence in diabetic patients in Bangladesh seems to be increasing as case detection of both diseases are far more than before. No statistical data of diabetic patients with cancer is currently available in Bangladesh. Worldwide, cancer is the second and diabetes is the 12th leading cause of death.[1]

Taking care of diabetes and malignancy in the same patient is challenging. In Bangladesh where advanced treatment facilities are limited, a patient with cancer and uncontrolled diabetes often suffers. Sometimes cancer patients with uncontrolled diabetes are referred to our hospital before any intervention. Vice versa, when a patient with diabetes is detected with malignancy we refer the patient to cancer specialist/cancer hospitals.

To reduce the sufferings of the patients, especially those who require intensive diabetic care, we have started treating cases with cancers in Internal Medicine Department with limited resources and facilities. For such cases BIRDEM General Hospital also offers supportive facilities including intensive care, chemotherapy, surgical intervention and oncology day care.

Methods

In this cross-sectional, observational study from January 2012 to June 2016, cancer in adult patients irrespective of their diabetic status admitted in Internal Medicine Department of BIRDEM General Hospital were included. With prior informed consent of the patients data was collected and statistical analysis was done using professional SPSS version 17.0 windows based program.

Results

Total number of cancer patients was 114, whose diagnoses were confirmed by histopathological evidence (biopsy/FNAC), radiology reports and cancer markers. Among them 64 (56.1%) were male and 50 (43.9%) were female patients. Most (80, 70.2%) of the patients were diabetic. Among other co-morbid conditions (Table I), hypertension (HTN) and ischemic heart disease (IHD) were predominant (17 and 9 cases respectively). Prevalence of more than one co-

morbidites were marked in the diabetic group (33 cases, p value >0.001).

Table I. Co-morbid conditions of the patients

Co- morbid conditions	Glycemic status		Total
	Diabetic	Non Diabetic	
None	21	31	52
HTN	15	2	17
IHD	9	0	9
Liver disease	2	0	2
Others	0	1	1
More than one	33	0	33
Total	80	34	114

Age of most of the patients was between 41-60 years (65, 57%). Others were above >60 years (26, 22.8%) and among 20-40 years group (21, 18.4%). Mean age was 55.16 years in diabetic group and 44.47 years in non-diabetic group (Table II). If we compare the diabetic and non-diabetic groups, it can be found that relatively younger patients were more in the non-diabetic group (mean age = 44.17 years) compared to diabetic group (Mean age = 55.16 years).

Table II. Age group with glycemic status

Age group (in years)	Glycemic status		Total	%
	Diabetic	Non Diabetic		
<20	0	2	2	1.8
20-40	7	14	21	18.4
41-60	51	14	65	57.0
>60	22	4	26	22.8
Total	80	34	114	100

Twenty one categories of malignancies were diagnosed during this study period. Majority of cases were lymphoma (21,18.4%), carcinoma breast (17,14.9%), carcinoma uterus and/or cervix (13,11.4%) and leukaemia (10,8.8%). In the diabetic group increased prevalence of lymphoma and carcinoma breast were observed (Table III).

Table III. Oncological diagnosis with glycemic status

Diagnosis	Glycemic status		Total	%
	Diabetic	Non Diabetic		
Lymphoma	16	5	21	18.4
Ca Breast	11	6	17	14.9
Ca lung	3	3	6	5.3
Ca Stomach	4	4	8	7.0
Ca uterus and/or Cervix	9	4	13	11.4
Multiple myeloma	4	1	5	4.4
Ca pancreas	5	0	5	4.4
Ca colon	0	3	3	2.6
Leukaemia	5	5	10	8.8
Salivary gland Ca	1	1	2	1.8
Ca rectum	2	1	3	2.6
Multiple metastasis	5	1	6	5.3
Prostatic Ca	2	0	2	1.8
Hepatic Ca	2	0	2	1.8
Ca GB	1	0	1	0.9
RCC	3	0	3	2.6
Ca UB	2	0	2	1.8
CNS Ca	1	0	1	0.9
Ca Spinal cord	1	0	1	0.9
Caoesophagus	1	0	1	0.9
Primary unknown	2	0	2	1.8
Total	80	34	114	100

*Ca means carcinoma

Common clinical features (Table IV) included palpable lump (21, 18.4%), lymphadenopathy (16, 14%), anaemia (9, 7.9%) and pain (8, 7%). The number of patients presenting with multiple signs/symptoms were also significant (32, 28.1%).

Case confirmation mostly was done by tissue diagnosis (histopathology) following biopsy (97, 76.3%) and FNAC (22, 19.3%). Other modalities included radio-imaging, cancer markers etc (Table V). On admission, in diabetic and non-diabetic groups mean haemoglobin was 9.7 and 9.9 gm/L respectively. Mean erythrocyte sedimentation rate (ESR) was 63.7 and 60.1 mm in 1st hour in diabetic and non-diabetic group respectively.

Table IV. Clinical features of oncology cases

	Frequency	Percent %	Valid Percent
No feature	1	0.9	0.9
Lump	21	18.4	18.4
Weight loss	1	0.9	0.9
Anorexia	3	2.6	2.6
Anaemia	9	7.9	7.9
Lymphadenopathy	16	14.0	14.0
Cough	2	1.8	1.8
Rectal bleed	4	3.5	3.5
Pain	8	7.0	7.0
Jaundice	4	3.5	3.5
Vomiting	2	1.8	1.8
More than one	32	28.1	28.1
Neurological	5	4.4	4.4
Haematuria	4	3.5	3.5
Uterine bleed	2	1.8	1.8
Total	114	100.0	100.0

Table V. Methods of confirming diagnosis

	Frequency	Percent %	Valid Percent	Cumulative Percent
FNAC	22	19.3	19.3	19.3
Biopsy	87	76.3	76.3	95.6
Tumor marker	1	.9	.9	96.5
Cytology	1	.9	.9	97.4
Imaging	3	2.6	2.6	100.0
Total	114	100.0	100.0	

The few cases of oncologic emergencies were either admitted with it or later developed the emergency during admission (Table VI). Among those, marrow failure (6, 5.3%), sepsis (5, 4.4%) and hypercalcaemia (4, 3.5%) were common.

Table VI. Oncological emergency with glycemic status

Oncological emergency	Glycemic status		Total	Percent %
	Diabetic	Non Diabetic		
None	63	28	91	79.8
Marrow failure	4	2	6	5.3
Sepsis	5	0	5	4.4
ICSOL*	1	1	2	1.8
TLS**	0	1	1	.9
Spinal Cord compression	0	1	1	.9
SVCO***	1	1	2	1.8
Hypercalcaemia	4	0	4	3.5
SIADH#	2	0	2	1.8
Total	80	34	114	100.0

* ICSOL: intracranial space occupying lesion

** TLS : tumor lysis syndrome

*** SVCO : superior vena cava obstruction

SIADH : syndrome of inappropriate anti diuretic hormone

Most patients were treated with chemotherapy (54, 47.4%). Many cases warranted a combined approach (46, 40.4%). Cases such as carcinoma breast, uterine and/or cervical cancers needed surgery and chemotherapy and /or radiotherapy. Surgical removal of tumor (both curative and palliative surgery) were required in 7 cases (6.1%). The treatment modalities are shown in Table VII. In all cases multidisciplinary approach were needed.

Table VII. Treatment modalities

	Frequency	Percent	Valid Percent
Supportive	5	4.4	4.4
Chemotherapy	54	47.4	47.4
surgery	7	6.1	6.1
Radiotherapy	2	1.8	1.8
Combination	46	40.4	40.4
Total	114	100.0	100.0

Treatment response (Table VIII) among stable cases and non-diabetic group was satisfactory. Patients showed good response in 57(50%) cases. Good response was categorized by improvement of both clinical, biochemical parameters and cancer markers. In 16 patients (14%) condition deteriorated and death occurred in 8 cases (7%). Even after repeated and empathic counseling we lost follow up of 15 cases (13.2%).

Table VIII. Treatment outcome of the patients

Outcome	Glycemic status		Total	Percent %
	Diabetic	Non Diabetic		
No response	12	1	13	11.4
Good response	37	20	57	50.0
Cured	4	1	5	4.4
Deterioration	12	4	16	14.0
Death	5	3	8	7.0
Lost from follow up		10	5	15
13.2				
Total	80	34	114	100.0

Discussion

In Bangladesh, according to a large study including 6492 cancer patients in National Institute of Cancer Research and Hospital of Bangladesh, the common cancers in adult males included cancers of lung, lymphatics, larynx, oral cavity and skin, while in adult females breast, cervix, lung, oral cavity, lymphatics and ovarian cancer were common[2]. Also in Bangladesh Cancer Registry Report (2005-2007), most frequent cancer was lung cancer followed by carcinoma cervix and breast[3].

Our study was a small sample based study to share our experience in the field of oncology. Most of the patients were diabetic as this is a well-known diabetes treating institute. In this study majority suffered from lymphoma in both sexes (both Hodgkin and Non-Hodgkin lymphoma) while in adult female patients carcinoma breast, uterine and/or cervical carcinoma were common.

About 57% of study sample are within age limit of 41 to 60 years which correlates with Bangladesh Cancer Registry Report that showed maximum number of the cancer patients were in age group between 30-65 years, which is around 66%[3]. Most diabetic patients with complications were of older age. On the other hand a good portion of the non-diabetic group were hospital staffs who were detected early as a case of cancer as they were entitled to hospital facilities and also due to early referral.

Epidemiological findings have shown upto two-fold increases in the risks of cancers of the colorectum, breast, endometrium, kidney (renal cell tumours), liver and pancreas among diabetic patients[4]. In our study, carcinoma (breast, uterus and/or cervix, pancreas, rectum, prostate, renal, urinary bladder), lymphoma and multiple myeloma were found to be predominant in

diabetic group (table VI). Some risk factors are common to both cancer and diabetes which include age, sex, obesity, physical activity, diet, alcohol, and smoking[5]. So, addressing those risk factors may be of benefit in avoiding occurrence of some malignancies.

Majority of patients presented with different clinical features while asymptomatic cases with incidental cancer diagnosis is quite negligible in this study. Another study showed incidental rate is much higher, (e.g. in endometrial carcinoma) in diabetic patients[6].

Case diagnosis was done largely based on tissue diagnosis (76.3%) from histopathology samples of bone marrow aspiration and organ biopsy. Many of the cases were suspected initially by radiological evidence which were later proved by histopathology, eventually a combine approach. Only in 2 cases secondary metastases were detected, the primary origins of which remain undiagnosed.

As most of the patients were admitted as routine cases or through emergency department with diabetes related complications, cases with oncological emergencies were less (only about 20%). Very few suffered from sepsis, marrow failure or tumerlysis syndrome as a direct consequence of chemotherapy or surgery. There was a significant difference among diabetic and non-diabetic group concerning the incidence of oncology emergency any time (21.25% and 17.6% respectively). This can be explained by concurrent co-mordities and/or complications occurring in diabetic group rather than the non-diabetic group. There are very few studies relating oncological emergency to diabetes. Study with common oncological emergencies in general population with cancer referred back to past 1994[7].

Few cases (e.g. carcinoma breast) were referred out for radio/brachytherapy after complication of chemotherapy developed .Paliative care including surgery/stenting and chemotherapy were offered to few patients with multiple metastasis.

The combined data of 'cured' and 'patient with good response' is significant (54.4%). Non-diabetic group showed more positive response to treatment (61.76%). Even after active empathic care 14% patients condition deteriorated and 7% died. Such outcomes are expected in complicated diabetes with terminal illness[8].

Conclusion

The terms 'cancer' as well as 'diabetes' is very well-known in the general population of our country. Incidence of both the diseases are progressively increasing, affecting life physically, socially, financially and psychologically. People are now more cautious and availability of newer and better investigation tools are unveiling the asymptomatic cases in the community. When a diabetic patient develops malignancy, the situation gets complicated. This group of patients need proper control of their glycaemic profile and specific management of malignancy at the same time. Often multi-disciplinary management is required. BIRDEM General Hospital, as a tertiary institute has a promising role here. Our oncology unit started this journey with small steps looking forward to provide a better future to all patients who are fighting against cancer with or without diabetes mellitus.

Conflict of interest: None

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