

Original Research Article

An observational hospital based study to compare hemoglobin level among cancer patients

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ABSTRACT

Background: Cancer related anemia (CRA) is a major healthcare problem. In the Indian context, these figures are likely to be higher due to the prevailing malnutrition in the general population. We have conducted this observational hospital based study on cancer patients with following objectives: 1) to assess the socio demographic profile of different cancer patients admitted at hospital; 2) to measure hemoglobin level among different cancer patients admitted at hospital on the basis of socio demographic profile and type of cancer.

Methods: The registers maintained in the department of Radiotherapy were checked and those belonging to the year 2011-12 were utilized to analyze the cancer patient's data in respect to age, type of cancer, hemoglobin level admitted in health care facility.

Results: As far as distribution of Hb level is concerned among all cancer patients, 87.56% patients were having Hb level more than 9gm% and around 12.43% patients were having Hb level less than 9 gm%. Majority of patients whose Hb level was less than 9gm% were belonging to age group more than 45 years.

Conclusions: It is very much evident that anemia among cancer patients is a major healthcare problem and should be taken seriously.

Keywords: Hemoglobin, Cancer patients

INTRODUCTION

Cancer related anemia (CRA) is a major healthcare problem. As many as three-fourths of cancer patients have anemia at some time during their illness (66% for solid tumors and 72% for hematological malignancies), 40% of them (36% of solid tumors and 47% of hematological malignancies) being severe enough to warrant red blood cell (RBC) transfusions.¹ In the Indian context, these figures are likely to be higher due to the prevailing malnutrition in the general population.²⁻⁴ It also varies with the underlying type of cancer, being highest for lung and ovarian cancer.⁵ Factors that predict

development of CRA include advancing age, baseline Hb levels, transfusions in the past 6 months and myelosuppressive therapy (chemotherapy or radiation therapy).⁶

There is a general consensus that Hb levels below 8 g/dl are considered severe. There is a growing body of evidence that both functional status and QoL are significantly compromised in cancer patients with hemoglobin (Hb) values equal or less than 12 g/dL. Moderately anemic cancer patients (Hb, 8–10 g/dL) exhibit fatigue, lethargy, dyspnea, loss of appetite and inability to concentrate, affecting their overall QoL (quality of life).⁷

Detection of anemia among cancer patients and an early intervention may have impact on their quality of life (QoL) and overall survival. We have conducted this observational hospital based study on cancer patients with following objectives:

1. To assess the socio demographic profile of different cancer patients admitted at hospital.
2. To measure hemoglobin level among different cancer patients admitted at hospital on the basis of socio demographic profile & type of cancer.

METHODS

As a part of training, the under graduate medical students are supposed to visit the Medical Record Department (MRD) of Government Medical College Hospital (GMCH), sector-32, Chandigarh which is barely 18 years old. Supervision of MBBS student's visit to MRD of GMCH, made us to know that disease-wise record of patients is not maintained there. Being adjacent to us, the department of Radiotherapy was visited many times during OPD hours. The faculty members were contacted and permission was obtained from them to take help of registers for analyzing data on cancer patient's profile.

The registers maintained in the department of Radiotherapy were checked and those belonging to the year 2011-12 were utilized to analyze the cancer patient's data in respect to age, type of cancer, hemoglobin level admitted in health care facility.

Inclusion and exclusion criteria

Records of cancer patients pertaining to year 2011 to 2012 were included in the study. Rest all records were excluded from the study.

Percentages were calculated to obviate the confounding effects of change in total number of patients. EpiCalc 2000 software was used for statistical analysis of data.

RESULTS

This study has collected data of 981 cancer patients over the time of year 2011-12. Out of these patients majority of patients were of breast cancer (31%) and cervical cancer (31.19%) followed by patients of other cancer. Among patients of breast cancer and cervical cancer majority of patients were in the age group of 45-59 years (Table 1).

Table 1: Distribution of cancer patients on the basis of age groups and organ affected.

Age group (in yrs)	Lung, tongue, larynx, pharynx N (%)	Breast N (%)	Cervix N (%)	Upper GIT N (%)	Lower GIT N (%)	Others N (%)
<30	04 (4.3)	11 (3.5)	06 (1.96)	01 (09.7)	02 (4.5)	26 (20.47)
30-44	12 (13.18)	79 (25.48)	74 (24.18)	24 (23.30)	05 (11.36)	29 (22.83)
45-59	44 (48.35)	160 (51.61)	134 (43.79)	43 (41.74)	12 (27.27)	21 (16.53)
60+	31 (34.06)	60 (19.35)	92 (30.06)	35 (33.98)	25 (56.81)	51 (40.15)
All ages	91 (100)	310 (100)	306 (100)	103 (100)	44 (100)	127 (100)
Organ distribution of cancer from total (%) n/N	9.2	31	31.19	10.5	4.48	12.94

Total cancer patients (N)=981.

Table 2: Distributions of cancer patients on the basis of age groups and hemoglobin level in blood.

Age group (in yrs)	Lung, Tongue, Larynx, Pharynx (Hb gm%)		Breast (Hb gm%)		Cervix (Hb gm%)		Upper GIT (Hb gm%)		Lower GIT (Hb gm%)		Others (Hb gm%)	
	< 9	> 9	< 9	> 9	< 9	> 9	< 9	> 9	< 9	> 9	< 9	> 9
<30	0 (00)	4 (4.8)	0 (00)	11 (3.7)	1 (1.61)	5 (2.04)	0 (00)	1 (1.12)	0 (00)	2 (5.7)	4 (26.6)	22 (19.64)
30-44	3 (37.5)	9 (10.84)	1 (7.14)	78 (26.35)	19 (30.64)	55 (22.54)	1 (7.14)	23 (25.84)	1 (11.1)	4 (11.4)	0 (00)	29 (25.8)
45-59	4 (50)	40 (48.19)	9 (64.28)	151 (51.01)	21 (33.87)	113 (46.31)	9 (64.28)	34 (38.2)	2 (22.2)	10 (28.5)	2 (13.3)	19 (16.9)
60+	1 (12.5)	30 (36.14)	4 (28.57)	56 (18.91)	21 (33.87)	71 (29.09)	4 (28.57)	31 (34.83)	6 (66.6)	19 (54.3)	9 (60)	42 (37.5)
All ages	8 (100)	83 (100)	14 (100)	296 (100)	62 (100)	244 (100)	14 (100)	89 (100)	9 (100)	35 (100)	15 (100)	112 (100)
Organ wise distribution of Hb from total (%) n/N	0.81	8.4	1.4	30.17	6.3	24.87	1.4	9.07	0.91	3.5	1.5	11.41

Total cancer patients (N)=981.

Table 3: Distributions of all cancer patients on the basis of age groups and hemoglobin level in blood.

Age group (in yrs)	All cancers (Hb gm%)		All ages
	<9 N (%)	>9 N (%)	
<30	5 (4.09)	45 (5.23)	50
30-44	25 (20.49)	198 (23.05)	223
45-59	47 (38.52)	367 (42.72)	414
60+	45 (36.88)	249 (28.98)	294
Chi-square:3.25, p value:0.354 (>0.05)			
All Ages	122 (12.43)	859 (87.56)	981

Chi-square:1107.45, p value:0.000005 (<0.001)

Out of total cancer patients of different parts of body cervical cancer (6.3%) patients were having hemoglobin level less than 9 gm% followed by other cancers. Majority of cancer patients were having hemoglobin level more than 9 gm% (Table 2).

As far as distribution of Hb level is concerned among all cancer patients, 87.56% patients were having Hb level more than 9 gm% and around 12.43% patients were having Hb level less than 9 gm%. Majority of patients whose Hb level was less than 9gm% were belonging to age group more than 45 years (p<0.01) (Table 3).

DISCUSSION

Anemia is a frequent complication in cancer patients, both at diagnosis and during treatment, with a multifactorial etiology in most cases. Surprisingly, this fact is usually neglected by the attending physician in a way that proper and prompt investigation of the iron status is either not performed or postponed.⁸

This study has collected data of 981 cancer patients over the time of year 2011-12. Out of these patients majority of patients were of breast cancer (31%) and cervical cancer (31.19%) followed by patients of other cancer. Out of total cancer patients of different parts of body cervical cancer (6.3%) patients were having hemoglobin level less than 9 gm% followed by other cancers. Majority of cancer patients were having hemoglobin level more than 9 gm%.

Other studies like Giridhar et al found prevalence of anemia is high in cancer patients (64%), consistent with findings from other studies but our study found prevalence of anemia lower than these studies.⁷

As far as distribution of Hb level is concerned among all cancer patients, 87.56% patients were having Hb level more than 9gm% and around 12.43% patients were having Hb level less than 9 gm%. Majority of patients whose Hb level was less than 9gm% were belonging to age group more than 45 years.

A recent cross sectional study of 214 non-myleoid tumor patients in 21 Spanish hospitals found that the prevalence of anemia was 48%, while a study conducted in Italy and Austria with 1136 solid tumor patients showed an overall

anemia prevalence of 31%.^{9,10} However, a study of solid tumor patients presenting at Belgian oncology and hematology centers found a lower prevalence of 13.8%.¹¹ The Australian Cancer Anemia Survey conducted during the same time as the ECAS showed a 35% anemia prevalence in cancer patients at the time of enrollment.¹² A single centre retrospective study in 148 patients with solid tumors in Japan reported that 44% had anemia at enrollment.¹³

Iron profile monitoring is recommended. Iron replacement is recommended if there is iron deficiency, but there is not enough evidence for greater details regarding the form of replacement and periodicity of monitoring.¹⁴ Iron replacements should be restricted to patients with absolute or functional iron deficiency.¹⁵

Hospital based study with small sample size were few of the limitations of this study. Nevertheless this study adds in to previously available literature on anemia among cancer patients and warrants more studies to be conducted on this major health issue among ailing cancer patients.

CONCLUSION

It is very much evident that anemia among cancer patients is a major healthcare problem and should be taken seriously. Its causes are well established and already reported in literature of repute. It impacts over all QoL (quality of life) more than is perceived by doctors. If not treated, it can shorten survival as well. What are the different guidelines existed for management of such patients should be explored. This small study was merely an attempt to surface this important health issue among cancer patients and to contribute in previously available literature in a bid to end up with more conclusive and acceptable evidence.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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