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Original Research Article

# Evaluation of hemoglobin level among various cancer patients -our institute experience

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**Abstract:** **Background:** Anemia has an important impact on quality of life in patients with cancer and cancer treatment outcome. In India, burden of anemia is higher due to the prevailing malnutrition in general population. We have conducted this observational hospital based study on cancer patients to assess the socio-demographic profile of the different cancer patients with their hemoglobin levels. **Material and Methods:** This study is observational hospital based study which includes total 150 cancer patients over the time of year 2018-19. We analyzed the cancer patient data in respect to age, type of cancer and the hemoglobin level before starting treatment. **Result**: Out of various cancer patients cervical cancer (12%) patients were having hemoglobin level less than 8gm% followed by other cancers (table no.2). Majority of the patients (65.33%) were having hemoglobin level more than 8gm% and most of the patients whose Hb level was less than 8gm% were belonging to age group 45-59. **Conclusion**: Anemia is major health problem in cancer patients and should be taken seriously.

**Keywords:** Anemia, cancer patients, hemoglobin.

## INTRODUCTION

Anemia is a common and important problem in patients with cancer. Most of the cancer patients have anemia at the sometime during their illness -60% for solid tumors and 72% for haematolymphoid malignancies, about 30-40% of them being severe enough to warrant blood cell transfusion (Ludwig, H. *et al.*, 2004). Different definitions are there to define anemia such as a lower than normal number of red blood cells (RBC) or less than the normal quantity of hemoglobin in the blood ,a lack of oxygen carrying RBC or a lack of oxygen delivery to tissue.

In India, burden of anemia is higher due to the prevailing malnutrition in general population (Parikh, P.M., & Bakshi, A. 2004). Reasons for anemia in cancer patients are decreased production of RBC resulting from nutritional deficiencies, or presence of chronic disease, bone marrow infiltration of tumor or bone marrow suppression resulting from anticancer treatment (surgery, chemotherapy or radiotherapy) and increase loss of RBC caused by blood loss from the tumor, surgery or hemolysis (Groopman, J. E., & Itri, L. M. 1999; Miller, C. B. *et al.*, 1990).

The presence of anemia affect the both functional status and quality of life in cancer patients as well as the cancer treatment outcome (Zenda, S. *et al.*, 2008; Grogan, M. *et al.*, 1999; Dunst, J. *et al.*, 2003).We have conducted this observational hospital based study on cancer patients to assess the socio-demographic profile of the different cancer patients with their hemoglobin levels.

## MATERIAL AND METHODS

This study is observational hospital based study which includes total 150 cancer patients over the time of year 2018-19.We included different types of cancer patients with confirmed biopsy report, both male and female who were going to take anticancer treatment at our hospital. We excluded all the haematolymphoid malignancies from this study. We analyzed the cancer patient data in respect to age, type of cancer and the hemoglobin level before starting treatment.

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## RESULTS

This study included total 150 cancer patients. Out of these majority of the patients were of cervix cancer (24%) and breast cancer (21.33%) followed by head and neck cancer. Among patients of cervix and breast cancer majority of patients were in the age group of 45-59 years (table 1).

**TABLE 1: Distribution of cancer patients with respect to age and organ affected**

| Age group(yrs) | Head and neck | Breast | Cervix | Lung | GIT | Others |
|---|---|---|---|---|---|---|
| <30 | 01 | 00 | 02 | 00 | 01 | 02 |
| 30-44 | 09 | 03 | 10 | 03 | 03 | 04 |
| 45-59 | 16 | 17 | 16 | 09 | 11 | 12 |
| 60+ | 02 | 12 | 08 | 02 | 02 | 05 |
| All ages | 28 | 32 | 36 | 14 | 17 | 23 |
| % | 18.6 | 21.33 | 24 | 9.3 | 11.3 | 15.3 |

**TABLE 2: Distribution of cancer patients with respect to age and hemoglobin in the blood**

| Age group(yrs) | Head and neck (Hb gm%) | | Breast (Hb gm%) | | Cervix (Hb gm%) | | Lung (Hb gm%) | | GIT (Hb gm%) | | Other (Hb gm%) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <8 | ≥8 | <8 | ≥8 | <8 | ≥8 | <8 | ≥8 | <8 | ≥8 | <8 | ≥8 |
| <30 | 00 | 01 | 00 | 00 | 01 | 01 | 00 | 00 | 01 | 00 | 00 | 02 |
| 30-44 | 02 | 07 | 01 | 02 | 06 | 04 | 00 | 03 | 01 | 02 | 01 | 03 |
| 45-59 | 06 | 10 | 06 | 11 | 08 | 08 | 03 | 06 | 04 | 07 | 03 | 09 |
| 60+ | 00 | 02 | 03 | 09 | 03 | 05 | 01 | 01 | 00 | 02 | 02 | 03 |
| All ages | 08 | 20 | 10 | 22 | 18 | 18 | 04 | 10 | 06 | 11 | 06 | 17 |
| % | 5.3 | 13.3 | 6.6 | 14.6 | 12 | 12 | 2.6 | 6.6 | 4 | 7.3 | 4 | 11.3 |

**TABLE 3: Distribution of all cancer patients with respect to age and hemoglobin in blood**

| Age group(yrs) | All cancers (Hb gm%) | | All ages |
|---|---|---|---|
| | <8 | ≥8 | |
| <30 | 02 | 04 | 06 |
| 30-44 | 11 | 21 | 32 |
| 45-59 | 30 | 51 | 81 |
| 60+ | 09 | 22 | 31 |
| All ages | 52 | 98 | 150 |
| % | 34.66 | 65.33 | |

Out of various cancer patients cervical cancer (12%) patients were having hemoglobin level less than 8gm% followed by other cancers (table no.2). Majority of the patients (65.33%) were having hemoglobin level more than 8gm% and most of the patients whose Hb level was less than 8gm% were belonging to age group 45-59 (table no.3).

## DISCUSSION

Anemia is a common and important problem in patients with cancer. Reasons for anemia in cancer patients are decreased production of RBC resulting from nutritional deficiencies, or presence of chronic disease, bone marrow infiltration of tumor or bone marrow suppression resulting from anticancer treatment (surgery, chemotherapy or radiotherapy) and increase loss of RBC caused by blood loss from the tumor, surgery or hemolysis. This study has included 150 patients of various cancers. Out of these majority of the patients were of cervix cancer (24%) and breast cancer (21.33%) followed by head and neck cancer. Among patients of cervix and breast cancer majority of patients were in the age group of 45-59 years. Majority of the patients (65.33%) were having hemoglobin level more than 8gm%. One trial found prevalence of anemia is higher in cancer patients but our study found this was lower than these studies (Kanuri, G. *et al.*, 2016).

Out of various cancer patients cervical cancer (12%) patients were having hemoglobin level less than 8gm% followed by other cancers. Majority of the patients (65.33%) were having hemoglobin level more than 8gm% and most of the patients whose Hb level was less than 8gm% were belonging to age group 45-59.One study done in non -myleoid tumor patients found that the prevalence of anemia was 48% while one study done in Austria with solid tumor showed an overall prevalence of 31% (Steegmann, J. L. *et al.*, 2013; Merlini, L. *et al.*, 2013). In our study total 34.66% patients showed Hb level lower than 8gm%.

Anemia has an important impact on quality of life in patients with cancer and cancer treatment outcome. So it should be managed properly. The goal of the therapy should be to increase the oxygen carrying capacity of the blood and treat underlying cause.

## CONCLUSION

Anemia is major health problem in cancer patients and should be taken seriously. It impacts overall quality of life of cancer on patients and treatment outcome. If not treated, it can shorten the life. So different guidelines existed for management of such patients should be explored.

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