International Journal of Medical Research Professionals
P-ISSN: 2454-6356; E-ISSN: 2454-6364
DOI: 10.21276/ijmrp

IJMRP

*Original Research Article.*

# Anaemia Amongst Subjects Admitted to the Tertiary Care Hospital: An Observational and Prospective Study

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## ABSTRACT

**Introduction:** Anaemia is a global health delinquent that affects developing and developed nations with major alterations on human health and impact the social and economic development. The aim of the present study was to evaluate anaemia in subjects admitted to of the hospital.

**Materials and Methods:** This observational study was performed at the Department of General Medicine, Rajshree Medical Research Institute & Hospital, Bareilly, Uttar Pradesh, India. All the diagnosis and analysis was done with the WHO classification, sufficient treatment was provided. Iron supplements (oral and injectable), folic acid supplements and B12 supplements were given for the underlying cause was provided. Student t test and chi square test were used for result interpretation.

**Results:** The present study enrolled 400 subjects between the age of 25-70 years. There were 44% males and 56% females. There were 25% males and 30% females with severe anaemia. Amongst them the haemoglobin level raised from 7.40 to 10.23 gm/ dl. There was a highly significant difference in haemoglobin level.

**Conclusion:** The incidence of anaemia was high amongst both males and females. Considerable attention should be paid to it specially amongst subjects undergoing elective surgery.

**Keywords:** Anaemia, Sahli's, Human, Pathology.

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**Article History:**
**Received:** 25-12-2017, **Revised:** 17-01-2018, **Accepted:** 30-01-2018

| Access this article online | |
|---|---|
| Website: www.ijmrp.com | Quick Response code |
| DOI: 10.21276/ijmrp.2018.4.1.148 | |

## INTRODUCTION

Anaemia is a global health delinquent that affects developing and developed nations with major alterations on human health and impact the social and economic development. It is more common in pregnant females and young children. In 2002, iron deficiency anaemia was amongst the most important factors to the global disease burden.[1] It is assumed that 50% of the subjects with anaemia are because of iron deficiency, but the ratio might change amongst subject groups and in different regions according to the local conditions.[2] It is also seen that the occurrence of micronutrient deficiencies, like vitamins A and B12, riboflavin, and copper also upsurges the risk of anaemia. Anaemia is also a pointer of poor nutrition and deprived health. The most studied health effects of anaemia that are increased danger of maternal and child mortality due to severe anaemia, have been well observed.[3-5] In any adult portion, anaemia is a prime risk factor for cardiovascular disorders and early death. It also leads to fatigue and negative influence on cognitive and physical actions and also on the life quality.[6] Many studies prove that anaemia amongst females leads to elevated risk of low birth, inadequate iron stores in neonates, increased risk of maternal mortality and a reduction in mental ability and physical activity.[7,8] The aim of the present study was to evaluate incidence of anaemia in subjects for elective surgical treatments of the hospital.

## MATERIAL AND METHODS

This observational study was performed at the Department of General Medicine, Rajshree Medical Research Institute & Hospital, Bareilly, Uttar Pradesh, India. All the subjects were informed about the study and a written consent was obtained from them in their vernacular language. A total of 400 patients were enrolled in the study. Patients with Hb lesser than 10 g / dl were included in the study. All the subjects were studied by the Sahli's

method. Complete blood count estimation and peripheral smear were prepared. All the patients were classified as mild, moderate, severe and normal range as per the obtained values. All the diagnosis and analysis was done with the WHO classification, sufficient treatment was provided. Iron supplements (oral and injectable), folic acid supplements and B12 supplements were given for the underlying cause was provided. Subjects with any complications like wound infection, anastomotic leak, hospital stay prolongation etc were noted. Awareness about anaemia was also raised and its treatment.

All the results were manually noted and later analysed electronically. SPSS software was used for statistical analysis. Student t test and chi square test were used for result interpretation.

**Table 1: Classification of Anaemia in Adult males and females**

| Classification of Anaemia* | Males | | Females | | P value |
|---|---|---|---|---|---|
| | Frequency | Percentage | Frequency | Percentage | |
| **Severe** | 50 | 25 | 60 | 30 | >0.05 |
| **Moderate** | 150 | 75 | 140 | 70 | |
| **Mild** | 0 | 0 | 0 | 0 | |
| **Normal** | 0 | 0 | 0 | 0 | |
| **Total** | 200 | 100 | 200 | 100 | |

**Table 2: Mean haemoglobin levels in different types of treatment given pre and post**

| Type of treatment | Haemoglobin | | | | |
|---|---|---|---|---|---|
| | Pre treatment | | Post treatment | | P value |
| | Mean | SD | Mean | SD | |
| **Medical treatment** | 8.26 | 0.85 | 10.26 | 0.64 | <0.05 |
| Oral | 8.47 | 0.47 | 10.01 | 0.48 | <0.05 |
| Injectable | 7.85 | 0.87 | 10.41 | 0.60 | <0.05 |
| **Folic acid tablets** | 8.65 | 0.37 | 9.76 | 0.48 | <0.05 |
| **Vitamin B12** | 8.75 | 0.25 | 9.78 | 0.21 | <0.05 |
| **Blood transfusion** | 7.59 | 0.60 | 10.12 | 0.66 | <0.05 |
| Packed red cell only | 7.40 | 0.79 | 10.23 | 0.52 | <0.05 |
| Whole blood only | 8.22 | 0.20 | 10.46 | 0.29 | <0.05 |
| Both | 7.31 | 1.00 | 10.29 | 0.77 | <0.05 |

## RESULTS

The present study enrolled 400 subjects between the age of 25-70 years. There were 44% males and 56% females.

Table 1 demonstrates the categorization of subjects according to grade of anaemia. There were 25% males and 30% females with severe anaemia. There were 75% males and 70% females with moderate anaemia. There was no significant difference was observed in the grade of anaemia amongst males and females.

Table 2 illustrates the mean haemoglobin levels in different types of treatment given pre and post. The mean haemoglobin level of 8.26 raised to 10.26 g/dl after medical treatment. Amongst them, the subjects receiving injectable, their mean haemoglobin level raised from 7.85 to 10.41 gm/dl. With folic acid tablet administration, the haemoglobin level raised from 8.65 to 9.78 gm/dl. Blood transfusion was also given amongst few subjects. Amongst them the haemoglobin level raised from 7.40 to 10.23 gm/ dl. There was a highly significant difference in haemoglobin level.

## DISCUSSION

Anaemia should be considered as serious and curable medical disorder. Reliant on events and definition of anaemia, up to 75% of subjects for elective surgery could be anaemic and up to 90% patients may be seen with anaemia during the postoperative period.[9] Anaemia is related with augmented risks of postoperative morbidity, infections, increased hospitalization etc. As per Verma et al a higher incidence of anaemia amongst the vegetarians were observed than the non-vegetarian subjects.[10] In a developing nations like India the poor availability of iron, accompanied with a less intake of iron derived from animal stuff, has been a major factor for anaemia.[11] This study also points out that the problems of Anaemia was associated with wider population than the usually regarded pregnant women, lactating women and children. Studies have found that Anaemia was an indicator of weak nutrition and bad health, with major penalties on the human health.[12,13] In the present study, there were 25% males and 30% females with severe anaemia. There were 75% males and 70% females with moderate anaemia. There was no significant difference was observed in the grade of anaemia amongst males and females. The mean haemoglobin level of 8.26 raised to 10.26 g/dl after medical treatment. Amongst them, the subjects receiving injectable, their mean haemoglobin level raised from 7.85 to 10.41 gm/dl. With folic acid tablet administration, the haemoglobin level raised from 8.65 to 9.78 gm/dl. Blood transfusion was also given amongst few subjects. Amongst them the haemoglobin level raised from 7.40 to 10.23 gm/ dl. There was a highly significant

difference in haemoglobin level. The study also indicated that the occurrence of anaemia was more in the younger ages, amongst lower socio-economic patients and with sedentary life style. There is a need for a planned, methodical and larger studies to evaluate the prevalence of anaemia at the community level amongst males and females in all age groups. Since prevention is always better than cure and anaemia is 100% preventable with proper dietary nutrition and considerable observation so steps should be taken to increase awareness against this.

## CONCLUSION

The incidence of anaemia was high amongst both males and females. Considerable attention should be paid to it specially amongst subjects undergoing elective surgery. It was also understood that Anaemia is a general predictor of various disorders; thus further studies should be performed.

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**Source of Support:** Nil.

**Conflict of Interest:** None Declared.



**Cite this article as:** Aditya Kumar Gupta. Anaemia Amongst Subjects Admitted to the Tertiary Care Hospital: An Observational and Prospective Study. Int J Med Res Prof. 2018 Jan; 4(1):666-68. DOI:10.21276/ijmrp.2018.4.1.148