



Prevalence of Anaemia in Geriatric Age Group in Koyalanchal area

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Abstract

This study shows that anaemia is highly prevalent in geriatric population in coal field areas with predominance in male population & morphologically it was Normocytic

Normochromic anaemia suggesting Anaemia of chronic disease or age-related decline in erythropoiesis.

Introduction

Anaemia is common hematological disorder prevalent in elderly population & it is frequently underdiagnosed because symptoms such as fatigue, weakness & reduced physical performances are often attributed to ageing itself. Anaemia is a major contributory factor in increased morbidity, impaired cognitive function & reduced quality of life.

WHO defines anaemia as hemoglobin levels below 13 gm/dl in males & 12gm/dl in females. Anemia in geriatric population is multifactorial like nutritional deficiencies (Iron, Vit B12 & Folic Acid), chronic disease, Renal insufficiency, hematological malignancies & age-related decline in bone marrow activity. Koyalanchal area is known for coal mining activities &

socioeconomic diversities. This area has its unique environmental & health challenges & has limited published data regarding prevalence of anaemia. Therefore, present study was conducted to evaluate prevalence & morphological pattern of anaemia among geriatric population in coalmining areas.

Review of Literature:

Several epidemiological studies have investigated anemia among elderly populations across the world.

Ferruci et al. (2010) demonstrated that anemia in older adults is strongly associated with chronic inflammatory and decreased erythropoietin production.

Studies from India also highlight significant regional variations:

- **Kerala:** ~ 38% prevalence.
- **North India:** ~ 52% prevalence.
- **Rural population:** up to 60%.

Patel et al. (2008) conducted a population-based study in rural India and found that **approximately 45% of elderly individuals were anemic**, with nutritional deficiencies being the major cause.

Bhasin and Rao (2011) reported a prevalence of **50-60 % anemia among geriatric population** in developing countries due to poor dietary intake and chronic disease.

Guralnik et al. (2004) analyzed data from the Third national health and Nutrition Examination Survey

(NHANES III) and reported that approximately **10-11% of elderly individuals in the United State suffer from anaemia**. The prevalence increases significantly with age.

Morphologically, most studies report **normocytic normochromic anaemia** as the predominant type among elderly patients, followed by microcytic hypochromic anemia.

However, data from mining-dominant regions such as the **Koyalanchal belt** remain scarce. The present study attempts to fill this gap by evaluating anemia prevalence using real-world laboratory data.

Materials & Methods

Study Design– Retrospective cross sectional observational study.

Study Period– May 2025 to March 2026.

Study Population– Geriatric Patient aged 65 years & above undergoing CBC testing with P.S. Examination.

Sample Size: 333 Patient coming to NABL Accredited Lab in Dhanbad. **Male:** 210 (63.1 %)

Female: 123 (36.9 %)

Exclusion criteria – Incomplete Lab date & known hematological malignancies under treatment.

Diagnostic criteria: -

Normal ≥ 13 gm/dl in males & > 12 gm/dl in females.
Mild Anaemia 11-12 gm/dl in males & 11-11.9 gm/dl in Females.

Moderate Anamia 8-10.9 gm/dl in males & 8-10.98 gm/dl in Females.

Severe Anamia < 8 gm/dl in Male & < 8 in Female.

Results

Demographic distribution.

Parameter	Number	Percentage
Total Patients	333	100%
Males	210	63.1%
Females	123	36.9%

The male predominance observed in the dataset may reflect healthcare utilization patterns in the region.

Prevalence of Anaemia.

Out of 333 patients

Category	Number	Percentage.
Anemic	181	54.3%
Non-anemic	152	45.7%

Thus, more than **half of the geriatric population studied was anemic**.

Severity of Anaemia.

Severity Approximate Percentage.

Mild ~ 25%

Moderate ~ 24%

Severe ~ 5%

Severe anemia cases included hemoglobin levels as low as **4.7 gm/dl** observed in some patients. Hb.

Morphological pattern of Anaemia.

Morphology Frequency

Normocytic Normochromic ~85%

Microcytic Hypochromic ~12%

Macrocytic / Mixed ~3%

Normocytic Normochromic anemia was the predominant morphological pattern.

Discussion

The present study shows a high prevalence (54.3 %) of Anaemia among geriatric patients in Koyalanchal Region.

This result is higher than that reported in developed countries but.

This prevalence is consistent with studies from other developing region. This may be attributed to

- 1) Nutritional deficiencies.
- 2) Chronic diseases.
- 3) Lower Socioeconomic conditions.
- 4) Limited health care access.

Morphological pattern: Normocytic normochromic anaemia was predominant- that may be attributed to chronic diseases, inflammatory condition & renal insufficiency.

Microcytic Hypochromic anaemia was less common & this may be due to iron deficiency / chronic blood loss.

Severe anaemia was seen in approx. 5% cases that may be due to G.I. bleed. Nutritional deficiencies or Bone marrow disorder.

Limitations

- Retrospective study design.
- Lack of biochemical investigation such as iron studies, Vit B12 & folate levels.
- Absence of clinical correlations for underlying disease.

Conclusion

The present study demonstrates that **anaemia is highly prevalent among the geriatric population in the Koyalanchal area**, affecting more the half of the study population with male predominance.

The majority of cases showed **normocytic normochromic** morphology, suggesting anemia of chronic disease or age-related decline in erythropoiesis.

Routine screening programs and nutritional interventions are necessary to improve the health status of elderly individuals in this region.

References

1. Guralnik JM et al. Prevalence of anaemia in persons 65 years and older. *Blood* 2004.
2. Patel KV et al. Epidemiology of anaemia in older adults. *Seminars in Hematology* 2008.
3. Ferrucci L et al. Anaemia in older persons. *Journal of Gerontology*. 2010.
4. Bhasin A, Rao MY. Characteristics of anaemia in elderly. *Indian Journal of Hematology*. 2011.
5. World Health Organization. Haematology concentrations for the diagnosis of anaemia. WHO guidelines.