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Association of Disorders with Severe Anaemia in Elderly Patients: A Cross-Sectional Study.

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ABSTRACT

Severe anaemia in the elderly is frequently accompanied by chronic systemic diseases that complicate its management and prognosis. Identifying associated comorbidities can aid in comprehensive patient care. To study the association of other systemic disorders with severe anaemia in elderly patients admitted to a tertiary care hospital. This cross-sectional observational study included 50 elderly patients (≥60 years) with haemoglobin <7 gm/dL. Detailed clinical history and laboratory evaluations were performed to identify common comorbidities. Data were analysed using descriptive statistics. The most prevalent associated disorders were hypertension (36%), diabetes mellitus (26%), chronic kidney disease (22%), and ischemic heart disease (10%). Males and females showed a similar distribution of comorbidities. A mixed diet was predominant in 92% of patients. Systemic comorbidities, particularly hypertension, diabetes, CKD, and IHD, are highly prevalent among elderly patients with severe anaemia. Their presence necessitates an integrated management approach to improve clinical outcomes.
Keywords: Severe anaemia, elderly, comorbidities

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INTRODUCTION

Severe anaemia is a frequent comorbidity in the elderly, often exacerbated by the presence of chronic systemic diseases [1]. The interplay between anaemia and comorbidities such as hypertension, diabetes mellitus, chronic kidney disease (CKD), and ischemic heart disease (IHD) contributes significantly to adverse health outcomes in this age group [2-4]. The elderly are particularly vulnerable to anaemia-induced complications due to diminished physiological reserves and the cumulative effects of multimorbidity [5]. Understanding the association of severe anaemia with other systemic disorders is essential for a holistic approach to patient management. Comorbid conditions may not only predispose patients to anaemia but also worsen its clinical course and impact. Previous studies have highlighted chronic inflammation, reduced erythropoietin production, and nutritional deficiencies as key mediators linking anaemia with systemic diseases [6-8]. This study aims to elucidate the prevalence of common comorbidities in elderly patients presenting with severe anaemia at a tertiary care hospital. A clearer understanding of these associations can inform integrated management strategies, potentially improving quality of life and reducing mortality in this growing demographic.

METHODOLOGY

This cross-sectional observational study was conducted between December 2014 and May 2016 at a tertiary care hospital. Fifty elderly patients (aged ≥60 years) with haemoglobin <7 gm/dL were enrolled after obtaining informed consent and Institutional Ethics Committee approval.

A comprehensive clinical history was taken, with a specific focus on identifying coexisting systemic diseases such as hypertension, diabetes mellitus, chronic kidney disease (CKD), and ischemic heart disease (IHD). Data regarding current medications and disease control were also collected.

All patients underwent detailed physical examination and laboratory workup, including blood pressure measurement, blood glucose levels, renal function tests, electrocardiography, and echocardiography where indicated. Ultrasonography of the abdomen was performed to evaluate kidney morphology and size.

Data were analysed using SPSS version 19.0. Frequencies and percentages were used to describe the prevalence of various comorbidities. Fisher's exact test was applied to assess statistical associations where applicable.

RESULTS

Table 1. Associated Systemic Disorders

Disorder	Number of Patients (n=50)	Percentage (%)
Hypertension	18	36%
Diabetes Mellitus	13	26%
Chronic Kidney Disease (CKD)	11	22%
Ischemic Heart Disease (IHD)	5	10%

Table 2. Gender Distribution of Comorbidities

Disorder	Male Patients	Female Patients	Total Patients	Percentage (%)
Hypertension	9	9	18	36%
Diabetes Mellitus	7	6	13	26%
CKD	6	5	11	22%
IHD	3	2	5	10%

Table 3. Dietary Pattern

Diet Type	Number of Patients	Percentage (%)
Mixed Diet	46	92%
Vegetarian	4	8%

DISCUSSION

This study examined the association of systemic comorbidities with severe anaemia in a cohort of elderly patients. Hypertension (36%) was the most prevalent comorbidity, followed by diabetes mellitus (26%), chronic kidney disease (22%), and ischemic heart disease (10%). These findings are consistent with existing literature, where chronic diseases frequently coexist with anaemia in elderly patients [9].

Hypertension contributes to anaemia through chronic inflammation and impaired renal function, which reduce erythropoietin production. Similarly, diabetes mellitus predisposes individuals to anaemia via nephropathy-induced erythropoietin deficiency and increased oxidative stress. In this study, 26% of patients had diabetes, a figure comparable to the prevalence reported in the NHANES III study and the work by Guralnik et al (2004), which showed diabetes to be a significant contributor to anaemia.

Chronic kidney disease was present in 22% of patients, underscoring the well-established link between renal dysfunction and anaemia. Reduced erythropoietin synthesis and iron utilization impairment are key mechanisms in anaemia associated with CKD. These findings align with previous reports by Artz et al (2011), where CKD was a major determinant of anaemia severity in older populations.

Ischemic heart disease, present in 10% of patients, can both result from and exacerbate anaemia. Anaemia increases cardiac workload and contributes to myocardial hypoxia, while cardiac medications (e.g., aspirin) may increase bleeding risk, further worsening anaemia. Our findings mirror those of Ferrucci et al (2010), who noted significant bidirectional interactions between anaemia and cardiovascular disease in the elderly.

Dietary habits also play a role. In this study, 92% of patients consumed a mixed diet, while only 8% were vegetarian, suggesting that diet alone may not fully explain anaemia in this group, highlighting the multifactorial nature of the condition [10-12].

Overall, this study underscores the complex interplay between severe anaemia and systemic comorbidities in elderly patients. Multimorbidity management is crucial in this demographic to address both the causes and consequences of anaemia. Early screening and integrated care pathways targeting anaemia and associated systemic diseases could improve patient outcomes and reduce healthcare burden.

CONCLUSION

Systemic comorbidities, particularly hypertension, diabetes, CKD, and IHD, are highly prevalent among elderly patients with severe anaemia. Their presence necessitates an integrated management approach to improve clinical outcomes.

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