

Anaemia in Post-Menopausal Women-A Hidden Hunger

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ABSTRACT

Objective: To determine the factors of iron deficiency anaemia among the post-menopausal women in our population.

Study Design: Cross-sectional study.

Place and Duration of Study: Department of Medicine, Pak Emirates Military Hospital, Rawalpindi Pakistan, from Aug 2019 to Jan 2020.

Methodology: A total of 300 post-menopausal women were included in this study. Menopausal status was taken as one year after the last menstrual period. Iron deficiency anaemia was diagnosed, based on haemoglobin and ferritin levels. In addition, the relationship of age, age at menopause, comorbid medical illnesses and duration of menopause was assessed with the presence of iron deficiency anaemia among the post-menopausal women participating in this study.

Results: Out of 300 post-menopausal women studied in the given period, 124(41.3%) had no anaemia, while 176(58.7%) had the iron deficiency anaemia. Furthermore, 225(75.0%) had menopause after the age of forty, while 75(25.0%) had menopause after the age of forty. After applying the binary logistic regression analysis, we found that advancing age, longer duration since menopause and presence of medical comorbidities had a statistically significant association with anaemia in the target population.

Conclusion: This study showed a high frequency of iron deficiency anaemia among post-menopausal women. In addition, women with longer duration since menopause, advanced age and other medical illnesses were more at risk of having iron deficiency anaemia s compared to other women.

Keywords: Anemia, Haemoglobin, Menopause, Socio-demographic factors.

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INTRODUCTION

Anaemia, especially iron deficiency anaemia, has been a problem worldwide. However, developing countries have been affected the most.¹ Blood indices have been affected by several medical, gastroenterological and neurological illnesses.^{2,3} A few diseases that commonly affect individuals regarding blood counts include chronic renal disease, endocrinopathies, liver disease, autoimmune diseases and migraine.^{4,5}

The elderly, especially post-menopausal women, pass through drastic physical, physiological and psychological changes in their life after the cessation of the menstrual cycle.^{6,7} At this point, if they suffer from iron deficiency anaemia, that may add to the suffering.⁸ Chai *et al.* concluded that women less than the age of 50 years have more chances of recovering from anaemia with nutritional effort as compared to women with age more than 50 years.⁹ A Chinese study was very interesting in this regard, showing a high prevalence of anaemia in elderly ladies. However, it

was independent of iron intake but related to low vitamin A intake. Nutritional factors were strongly related to anaemia in their sample population.¹⁰

A baseline data from our population needs to be generated in this regard in order to quantify the problem for future researchers and policymakers so that they can plan to cater for it accordingly. Therefore, we planned this study to determine the prevalence and correlates of iron deficiency anaemia among post-menopausal women in our population.

METHODOLOGY

This cross-sectional study was conducted at the Department of Medicine, Pak Emirates Military Hospital Rawalpindi Pakistan, from August 2019 to January 2020. The Ethical Review Board Committee was approached to get ethical approval for this study (IREB letter no A/124EC 129). The sample size was calculated by WHO sample size calculator with the prevalence of anaemia in post-menopausal women as 28%.¹¹ Non-probability consecutive sampling technique was used to gather the sample.

Inclusion Criteria: All women of age 40 to 65 years with menopause were included in the study.

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Exclusion Criteria: Women with anaemia prior to menopause, malignancies (solid or haematological), severe infection or organ failure in the past six months were excluded from the study. In addition, patients who had B-12 or folate deficiency or replacement therapy, had recent surgery, had NSAID abuse or any autoimmune disorder, were using illicit drugs, or those whose follow-up was not possible were also excluded from the study.

Written informed consent was taken from all the potential participants of this study before the start after a complete description of the study. Post-menopausal women presenting as attendants of medical or surgical patients in the hospital were included in the study. Venous blood was taken from the participants between 9 and 11am after 12 hours of fasting. Complete blood count (CBC), serum ferritin, vitamin B12, and folic acid were measured. CBC was measured using a flow cytometer and an automated analyzer.¹² Serum ferritin was measured using a radioimmunoassay method. Socio-demographic variables were also collected. Comorbid illness included DM, HTN, IHD or any other chronic disease not directly linked with iron deficiency anaemia. Variables in the study included age, age at menopause, comorbid medical illnesses and duration of menopause. Iron deficiency anaemia was defined as blood haemoglobin values of <12g/dl and serum ferritin levels of 15ng/mL.¹³

All statistical analysis was performed using Statistics Package for Social Sciences version 24.0 (SPSS-24.0). Characteristics of participants and the distribution of iron deficiency anaemia were described using descriptive statistics. Chi-square was first applied, and then binary logistic regression analysis was done to evaluate the relationship of age, age at menopause, comorbid medical illnesses and duration of menopause with the presence of iron deficiency anaemia. The *p*-value lower than or up to 0.05 was considered as significant.

RESULTS

Out of 300 post-menopausal women studied in the given period, 124(41.3%) had no anaemia, while 176(58.7%) had the presence of iron deficiency anaemia. 225(75.0%) had menopause after the age of forty, while 75 (25.0%) had menopause after the age of forty. Other characteristics of the study population were also mentioned in the Table. After applying the binary logistic regression analysis, we found that advancing age, longer duration since menopause and presence of medical comorbidities had a statistically significant

association with the presence of anaemia in the target population (*p*-value <0.05), while age of menopause had no statistically significant relationship with the presence of iron deficiency anaemia in post-menopausal women taking part in this study (*p*-value 0.285).

Table: Characteristics of post-menopausal women included in study (n=300)

Characteristics	n(%)
Age (years)	
Mean±SD	58.47 ±4.56 years
Range (min-max)	45 years-64 years
Presence of Iron Deficiency Anemia	
No	124 (41.3%)
Yes	176 (48.7%)
Duration Since Menopause	
>5 years	149 (49.7%)
<5 years	151 (50.3%)
Mean Duration since menopause	6.87 (±3.61) years
Presence of Comorbidities	
No	200 (66.7%)
Yes	100 (33.3%)
Age at Menopause	
>45 years	225 (75.0%)
<45 years	175 (25.0%)

DISCUSSION

Menopause brings about a major change in the life of women. They face the routine challenges of ageing, and this drastic endocrine change predisposes them to many medical and psychological problems.^{14,15} Dalal *et al.* mentioned these problems together under post-menopausal syndrome, which encompasses all the signs and symptoms manifested in women after the cessation of their menstrual cycle.¹⁶ Assaf *et al.* concluded that menopause affects women in several ways. The health-related condition in them consumes a lot of health care budget.¹⁷ These problems are not limited to one or two systems. Rather, it is a multisystem phenomenon interwoven with routine physiological ageing changes. A clear knowledge of these problems and diseases can enable geriatric care physicians and general physicians to manage women after menopause properly. Iron deficiency anaemia is such a disease that it has medical and nutritional aetiology, so we planned to assess the prevalence of anaemia and related factors among post-menopausal women. Boykin, long ago, in the analysis, recommended the prevention of iron deficiency anaemia in post-menopausal women by the intake of iron and related nutritional factors to have a healthy life and overall good functioning.¹¹ Zhang *et al.* came up with the findings of nutritional deficiencies linked to the presence of anaemia among older women. They con-

cluded that dietary habits, vegetarian restriction and low intake of vitamin A were the factors linked with anaemia among the elderly ladies they studied for their research.¹²

Iron deficiency anaemia has multiple and complex etiologies. Nutritional and metabolic aspects have been on top with absorption or blood loss problems. Post-menopausal women, especially from developing countries, may have entered menopause with pre-existing anaemia due to multiple childbirths or nutritional deficiencies. Even if they have metabolic problems or absorption issues, they may have remained undiagnosed until menopause and have been living with them for years. The local study by Qamar et al. have emphasized absorption issue among the anaemic ladies of the post-menopausal group.¹³

Iron deficiency anaemia is a multidimensional problem with physical, nutritional and physiological dimensions.¹⁵ Changes after menopause may interfere in any domain and lead to anaemia. Maninder Kaur has shown a very high prevalence of anaemia in menopausal women in his study in our neighbouring country India. 85.2% of post-menopausal women in the study were anaemic.¹⁸ Results in our study show a similar pattern. The reason for a much higher percentage in his study might be the inclusion of the rural population only, while our study participants were mixed from rural and urban populations.

The results of the study done by Bishoni in 2018 are also interesting. She studied that though young and menstruating females are more at risk for developing iron deficiency anaemia, being post-menopausal is not a protective factor against iron deficiency anaemia, and ladies even show the presence of anaemia after attaining menopause.¹⁹ Lower GI bleeds and malabsorption were common causes of iron deficiency anaemia in old age post-menopausal females. Unfortunately, we did not study the cause of anaemia in our study. However, the prevalence was high and comparable to these studies done in the recent past in our neighbouring country.

LIMITATIONS OF STUDY

There have been many limitations in our study. It should have been a population-based study. Moreover, history was the only way to exclude women with iron deficiency anaemia before menopause. The baseline status of the haematological profile before menopause would have generated better results. Studies in future addressing these limitations may provide accurate data in this regard.

CONCLUSION

This study showed a high frequency of iron deficiency anaemia among post-menopausal women. In addition, women with longer duration since menopause, advanced age and other medical illnesses were more at risk of having iron deficiency anaemia compared to other women.

Conflict of Interest: None.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

SUS & MH: Data acquisition, data analysis, drafting the manuscript, critical review, approval of the final version to be published.

MN & AH: Conception, drafting the manuscript, approval of the final version to be published.

MSK & SS: Study design, drafting the manuscript, data interpretation, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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