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ORIGINAL ARTICLE

Assessment of prevalence of anemia and its associated factors among older subjects

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ABSTRACT:

Background: Anemia is prevalent in the elderly. Moreover, it is becoming more common, particularly as people age. The present study was conducted to assess prevalence of anemia and its associated factors among older subjects. **Materials & Methods:** 256 subjects age >60 years of both genders, based on hemoglobin level, patients were divided into 2 groups of 128 each. Group I had anemia and group II had not anemia. Parameters such as hypertension, diabetes, hypercholesterolemia and difficulties in sight, hearing, walking, self-care, remembering and communicating were included. **Results:** In group I, males were 52 and females were 76 and in group II, males were 60 and females were 68. Age group 60-69 years had 68 and 72, 70-79 years had 40 and 42 and >80 yeas had 20 and 14 patients in group I and II respectively. Married were 82 and 87, unmarried were 24 and 30 and divorced/widow were 20 and 11 patients in group I and II respectively. Education was primary in 55 and 78 and secondary and above in 73 and 50 patients in group I and II respectively. Diabeteswere 72 and 48, hypertensive were 80 and 52, Hypercholesterolemia was seen in 69 and 51, difficulty in hearing was seen in 95 and 78, difficulty in seeing in 98 and 75, difficulty in walking in 100 and 81, difficulty in remembering in 80 and 69, difficulty in communicating in 82 and 68 and difficulty in self-care in 94 and 76 patients in group I and II respectively. The difference was significant (P< 0.05). **Conclusion:** Diabetes and advancing age were the reliable indicators of the development of anemia. Anemia is substantially linked to eyesight and movement impairments in elderly diabetics as well as challenges with self-care in non-diabetics.

Keywords: Anemia, hypertension, older

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INTRODUCTION

Anemia is prevalent in the elderly. Moreover, it is becoming more common, particularly as people age. Anemia prevalence in those 60 years of age and older is 39% worldwide, and it is 54.1% in Asia.[1] According to WHO guidelines, anemia in older adults is defined as a hemoglobin level of less than 13 gm/dL for males and 12 gm/dL for women. Anemia in the elderly can have a variety of reasons.[2] Nonetheless, iron-deficiency anemia and chronic illness are the most frequent causes of anemia in the elderly. Additionally, anemia increases the chance of unfavorable outcomes like hospitalization and morbidity.[3]

Older adults' anemia is especially important since it can lead to several dangerous outcomes.[4] Higher rates of cardiovascular disease, cognitive decline, diminished physical function and quality of life, an increased risk of falls, fractures, weakened muscles, and dementia, as well as an increased risk of hospital admission and prolonged hospital stays, are all linked to it.[5] The research has also shown that anemia is linked to impairments in activities of daily living (ADL) for elderly patients in hospitals. It has been observed that aging populations and chronic diseases increase the burden of impairment.[6]There are few studies on the relationship between anemia and chronic illnesses and disability in Malaysian seniors. Furthermore, problems are linked to chronic illnesses. Moreover, the burden of diabetes-related blindness from diabetic retinopathy is linked to older adults with diabetes.[7]The present study was conducted to assess prevalence of anemia and its associated factors among older subjects.

MATERIALS & METHODS

The present study was conducted on 256 subjects age >60 years of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. Parameters such as hypertension, diabetes, hypercholesterolemia and difficulties in sight, hearing, walking, self-care, remembering and communicating were included. Anemia was defined as a blood hemoglobin level below 12 g/dL for older women and below 13 g/dL for older men. Based on hemoglobin level, patients were divided into 2 groups of 128 each. Group I had anemia and group II had not anemia. Disability was defined as having difficulty in at least one of the six following domains: sight, hearing, walking, cognition, self-care and communication. It was scored as having “a lot of difficulty or unable to do at all” or at least “some difficulty” in at least two domains.Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
M:F	52: 76	60:68

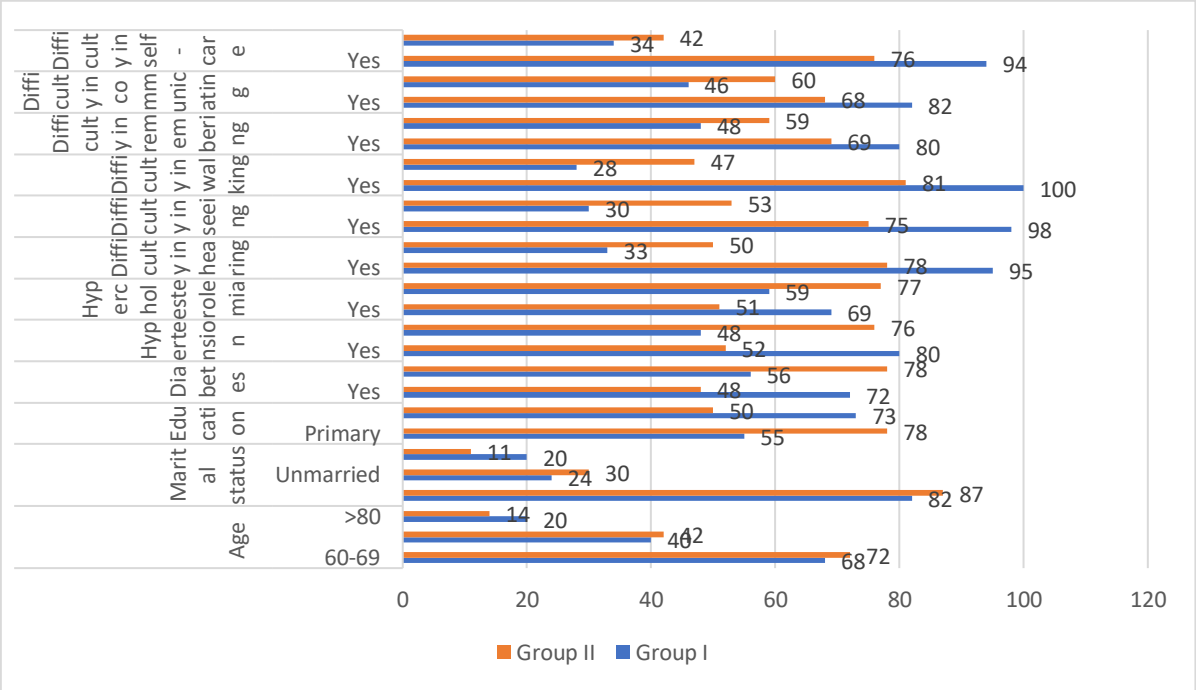
Table I shows that in group I, males were 52 and females were 76 and in group II, males were 60 and females were 68.

Table II Assessment of parameters

Parameters	Variables	Group I	Group II	P value
Age	60-69	68	72	0.92
	70-79	40	42	
	>80	20	14	
Marital status	Married	82	87	0.05
	Unmarried	24	30	
	Divorced/widow	20	11	
Education	Primary	55	78	0.02
	Secondary and above	73	50	
Diabetes	Yes	72	48	0.03
	No	56	78	
Hypertension	Yes	80	52	0.02
	No	48	76	
Hypercholesterolemia	Yes	69	51	0.05
	No	59	77	
Difficulty in hearing	Yes	95	78	0.04
	No	33	50	
Difficulty in seeing	Yes	98	75	0.03
	No	30	53	
Difficulty in walking	Yes	100	81	0.01
	No	28	47	
Difficulty in remembering	Yes	80	69	0.03
	No	48	59	
Difficulty in communicating	Yes	82	68	0.05
	No	46	60	
Difficulty in self-care	Yes	94	76	0.05
	No	34	42	

Table II shows that age group 60-69 years had 68 and 72, 70-79 years had 40 and 42 and >80 yeas had 20 and 14 patients in group I and II respectively. Married were 82 and 87, unmarried were 24 and 30 and divorced/widow were 20 and 11patients in group I and II respectively. Education was primary in 55 and 78 and secondary and above in 73 and 50patients in group I and II respectively.Diabeteswere 72 and 48, hypertensive were 80 and 52, Hypercholesterolemia was seen in 69 and 51, difficulty in hearing was seen in 95 and 78, difficulty in seeing in 98 and 75, difficulty in walking in 100 and 81, difficulty in remembering in 80 and 69, difficulty in communicating in 82 and 68 and difficulty in self-care in 94 and 76 patients in group I and II respectively.The difference was significant ($P< 0.05$).

Graph I Assessment of parameters



DISCUSSION

Anemia is a condition characterized by a deficiency in the number or quality of red blood cells (RBCs) or hemoglobin, which impairs the blood's ability to carry sufficient oxygen to the body's tissues.[8,9]The National Health and Nutrition Examination Survey 2003–2012 mentioned that the anemia prevalence was highest in males aged 85 years old and over in the United States population. Adults who were older than 85 years old, those with less education, those who had a positive screening result for cognitive decline, those who had previously been diagnosed with hypertension, diabetes, cancer, cardiovascular disease, encephalic vascular accident, osteoporosis, or three or more chronic diseases, and those who reported depressive symptoms were also more likely to have anemia.[10]The present study was conducted to assess prevalence of anemia and its associated factors among older subjects.

We found that in group I, males were 52 and females were 76 and in group II, males were 60 and females were 68. Age group 60-69 years had 68 and 72, 70-79 years had 40 and 42 and >80 yeas had 20 and 14 patients in group I and II respectively. Marriedwere 82 and 87, unmarried were 24 and 30 and divorced/widow were 20 and 11 patients in group I and II respectively. Krishnapillai et al[11] found that the prevalence of anemia was 35.3% in the older persons. Chronic disease profiling showed that the prevalence rates of anemia among the older persons with diabetes, hypertension and hypercholesterolemia were 38.6%, 35.3% and 34.1%, respectively. In the multivariable analysis, persons aged 80 years and above (adjusted OR (aOR): 2.64; 95% CI: 2.00, 3.47), 70–79 years (aOR: 1.42; 95% CI: 1.21, 1.66), with diabetes (aOR: 1.30; 95% CI: 1.13, 1.51) and with disabilities in walking (aOR: 1.31; 95% CI: 1.11, 1.54) and self-care (aOR: 1.58; 95% CI: 1.22, 2.05) had higher odds of anemia compared to their respective reference categories. Among the persons with diabetes, the respondents aged 80 years and above (aOR: 2.48; 95% CI: 1.56, 3.94), 70–79 years old (aOR: 1.38; 95% CI: 1.08, 1.76) and with disabilities in vision (aOR: 1.29; 95% CI: 1.02, 1.63) and walking (aOR: 1.50; 95% CI: 1.18, 1.91) were more likely to be anemic. Furthermore, among the older persons without diabetes, persons aged 80 years and above (aOR: 2.89; 95% CI: 2.05, 4.07), 70–79 years old (aOR: 1.46; 95% CI: 1.19, 1.80) and with difficulty in self-care (aOR: 1.87; 95% CI: 1.30, 2.69) were more likely to be anemic.

We observed that education was primary in 55 and 78 and secondary and above in 73 and 50 patients in group I and II respectively. Diabetes were 72 and 48, hypertensive were 80 and 52, Hypercholesterolemia was seen in 69 and 51, difficulty in hearing was seen in 95 and 78, difficulty in seeing in 98 and 75, difficulty in walking in 100 and 81, difficulty in remembering in 80 and 69, difficulty in communicating in 82 and 68 and difficulty in self-care in 94 and 76 patients in group I and II respectively.Bach et al[12] in their study, a total of 3794 participants aged 60 years and older responded to the anaemia module with a response rate of 93.7%. 64.0% of respondents were of Malay ethnicity, 21.6% were Chinese, 6.1% were Indians, and 8.3% were of other ethnicities. The overall prevalence of anaemia among older people was 35.3%. The highest prevalence of anaemia was found among respondents of Indian ethnicity (45.5%). The Indian (aOR: 1.72; 95% CI 1.26-2.34) and Malay (aOR: 1.25; 95% CI 1.04-1.49) ethnic groups were more likely to be anaemic in

comparison to those of Chinese ethnicity. Anaemia in older people was also associated with increasing age, history of hospital admission, and the presence of diabetes mellitus.
The shortcoming of the study is small sample size.

CONCLUSION

Authors found that diabetes and advancing age were the reliable indicators of the development of anemia. Anemia is substantially linked to eyesight and movement impairments in elderly diabetics as well as challenges with self-care in non-diabetics.

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