Prevalence Of Anemia In Completely Edentulous Women: A Retrospective Study

Research Article

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Abstract

Anemia is a condition in which Haemoglobin concentration and RBC number are lower than the normal. Anemia is associated with increased morbidity of the world's population. Females were consistently at greater risk of anemia than men across almost all geographic regions in most age groups. The oral aspect of aging as related to nutritional and vitamin deficiencies, have been reviewed in dental literature, where in many of the degenerative changes seen in the oral cavity may be due to loss of essential nutrients. 134 patients were examined for the study. Each patient's demographic details, haemoglobin status were noted under certain parameters. Collected data was statistically analysed by a software SPSS. The chi square test for each parameter and correlation were done. It is inferred that 45 to 60 years with completely edentulous status are reported higher in number. A statistically significant correlation was found in between the age group and anemic status of completely edentulous women with a chi square value of $p < 0.05$. With in the limits of the present study the correlation between anemia and age groups was found to be statistically significant with a p value of <0.05. The present study reveals anemia is more common among 45 to 60 age grouped completely edentulous females. Anemia is easily preventable as well as treatable and the available measures are relatively affordable. This study shows a strong relation between edentulism and anemia.

Keywords: Women; Completely Edentulous; Anemia; Age Groups.

Introduction

Anemia is a condition in which Haemoglobin (Hb) concentration and or red blood cell (RBC) numbers are lower than the normal and insufficient to meet an individual's physiological need and affects roughly one third of the world population [21]. Anemia is associated with increased morbidity and mortality in women, [8, 17] with poor birth outcome, decreased work productivity in adults.

Establishing appropriate Hb thresholds to define anemia which is essential for ensuring that anemia is correctly identified, and it's negative effects are prevented. Females were consistently at a greater risk of anemia than men across almost all geographic regions and in most age groups [31]. Other at risk groups include the elderly, as the prevalence of anemia among adults over 50 years of age rises with the advancing age [24].

However, there are intra - and inter country variations in the prevalence of complete edentulism among older patients and direct comparison between national samples is difficult because of the impact of various factors like education, economic circumstances, lifestyle, oral health knowledge and beliefs, and attitudes to oral health care [28]. Studies show that edentulism is closely associated with socioeconomic factors which is more prevalent in poor populations especially in women. Other factors contributing to the prevalence of complete edentulism are age, education, access to dental care, dentist/population ratios, and insurance coverage.

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Most edentate people are elders above 40 years of age who wear complete dentures in one or both jaws. Studies have demonstrated that denture wearing continues to increase due to the increase in the aging population; a large number of people still depend on removable dentures for oral function [9, 26].

Many nutrient deficiencies common in elderly, including zinc and vitamin B12, seem to result in decreased or modified immune response [30]. Declines in gastric acidity occur with age and cause malabsorption of food bound vitamin B12 [15]. A host of life situational factors increase nutritional risk in elders. With a decline in lean body mass in the elderly, caloric needs decrease and risk of failing increases [23, 16]. In edentulous patients, some people compensate for decline in masticating ability by choosing cooked food rather than fresh foods and by chewing longer before swallowing. Where as, others may eliminate an entire food group from their diet [11]. These facts explain the etiology of anemia.

The oral aspect of aging as related to nutritional and vitamin deficiencies, have been reviewed in dental literature, where in many of the degenerative changes seen in the oral cavity may be due to loss of essential nutrients [7]. This disability could substantially influence the desire to bite, to chew, and to swallow and could lead to a modification of their food choices. As a result, many researches have consistently demonstrated that tooth loss and dental status have a negative impact on diet and food selection and have resulted in deficiency.

According to several studies, tooth loss can affect general health in several ways as indicated.

lower intake of fruits and vegetables, fibre and increased cholesterol and saturated fat, in addition to a higher prevalence of anemia, can increase the risk of cardiovascular disease and GIT disease [26].

Higher rates of peptic ulcer [34].

Increased risk of non insulin dependent diabetes mellitus [25].

Increased risk of hypertension. A study also demonstrate a possible association between completely edentulism and an increased risk of hypertension [32].

Several longitudinal, prospective and cross sectional studies have supported the association between tooth loss, diet and nutrition. Systemic diseases can impact the successful outcome of several restorative and prosthetic procedures [38] [14, 3, 37, 12, 33, 36, 1, 13 18, 19, 2, 4, 20, 10]. Impaired dentition imposes dietary restrictions and affects food eating patterns and results in anemia [31, 34]. Hence, the aim of this present cross sectional study was to investigate the prevalence and determinant of anemia among edentulous women who visited Saveetha Dental college.

Materials and Method

The study is a retrospective cross sectional study. This study was conducted among completely Edentulous women who visited Saveetha Dental college and hospital, Chennai. It included demographic data of the patients along with the anemic status of each individual.

Sampling: 134 female completely edentulous patients.

Data collection: During the period from June 2019 to March 2020 we reviewed the case record of 86000 patients out of which 134 females were completely edentulous were selected for this study. The data collected was classified according to age, gender, anemic status, edentulous area and systemic disease status.

A customised examination was used to collect the data and a special table for data collection was prepared. Data collected were recorded in the excel sheet which was later transferred for statistical analysis using SPSS software. Data were analysed using chi square test. P value less than or equal to 0.005 was taken as significant.

Inclusion and Exclusion Criteria: All the data was collected including completely edentulous with anemic status in women's, male patients were excluded from this study.

Ethical Approval: The study protocol was approved by the Institutional review board and ethical approval was obtained (SDC/SIHEC/2020/DIASDATA/0619-0320).

Results and Discussion

Anemia among women in this large, southern Indian state cuts across social class, place of residence, and other factors that normally discriminate health status. Rich or poor, fat or thin, urban or rural, partial or completely edentulous, the prevalence of anemia is high among women in all these groups. Some studies reveal that low hemoglobin count is associated with blood loss [35]. The bliss loss may be due to menstrual bleeding, digestive or urinary tract, or frequent blood donations. Where as, anemia is a major health threat to the developing countries. Educational programs need to be conducted to improve the public awareness of this problem and its causes. Nutrition education programs should be conducted especially for the women to advocate healthy dietary habits. Screening for iron deficiency in high risk groups should be considered. Primary physician education is needed to ensure a greater awareness and the testing needed to establish diagnosis as well as underlying causes of anemia [27].

The frequency of age distribution of female patients with completely edentulous status who have visited the OP. It is inferred that 45 to 60 years reported higher in number (Figure 1). Figure 2 shows the frequency of edentulous areas in women who've visited the op. It is inferred that both arch edentulous reported higher in number than a single arch edentulousness.

Figure 3 depicts the association between the age groups and anemic status. It is inferred that anemia is seen in around 45 to 60 age grouped females. They were found to be statistically significant. They showed positive correlation with a p square value of 0.0024 which is less than p value = 0.05, statistically significant (Table 3). Anemia is seen around 45 to 60 age grouped females (Figure 3) and this correlates with the result given by Lee et al, [22]. Reported more than 75% of participants showed prevalence of anemia more common among 52 years old females. Thus this evidence added to the consensus for this study and can be used as a reliable criteria for the association between edentulous and anemic women.

Figure 1. This figure represents the frequency of age distribution of the patients that were included in the study. Here, X axis represents the different age groups and Y axis represents the frequency of participants. Patients who belong to the age group of 45 to 60 showed the highest followed by 60 to 75 , 30 to 45 and above 75 years.
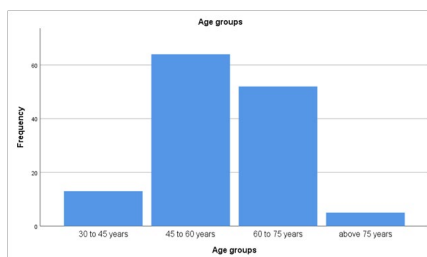

Figure 2. This figure represents the frequency distribution of edentulous area in female patients that were included in the study. Here, X axis represents the edentulous area and Y axis represents the frequency of the total number of participants. It is inferred that both arch edentulous reported higher than single arch edentulous (86%).
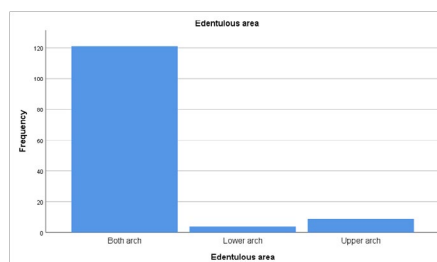

Figure 3. This figure represents the descriptive distribution showing the association between the age group and anemic status of the patient that were included in the study. Here, X axis represents the anemic status and Y axis represents the frequency of age groups. This graph shows the higher prevalence of anemia in 45 to 60 years(89%).
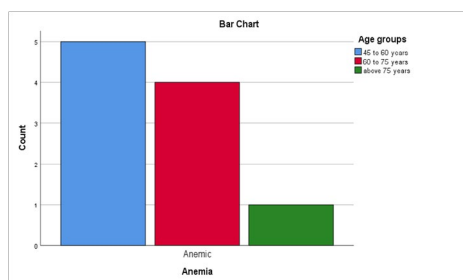

Table 3. Chi square correlation between age groups and anemic status.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.714ᵃ	21	.0024
Likelihood Ratio	19.615	21	.005
N of Valid Cases	134		

According to this study, the prevalence of edentulous is more common in 45 to 60 age groups (47.8%). Figure 4 illustrates the association between edentulous areas and age groups. Chi square correlations were done between age groups and edentulous area. P value was 0.096, which is statistically non significant (Table 4). This value is similar to the results derived by campos et al [6] with a prevalence of edentulous in the 50 year old age group.

According to the studies Nowjack - Raym et al [29] and Brennan RM et al [5], they suggested that the most commonly seen systemic disease in edentulous patients is diabetes (>65%). The association between systemic disease and different age groups is illustrated in Figure 5, it is seen in the majority of the cases, most commonly seen systemic disease in edentulous patients is diabetes. Chi square correlations were done between age groups

and systemic disease. P=0.24, which is statistically non significant (Table 5).

Interventions like iron and folic acid supplementation and other strategies such as diet modification, infection control, nutritional education must be undertaken. Anemia is more prevalent among women in old age. Patients must be monitored periodically, iron supplements and diet or nutritional counselling should be given.

Limitations of study: The study included short sample size and is a single centred study.

Future scope of our study: The study could be done in a larger population. Preventive measures need to be taken in future to decrease the burden caused by anemia. OHI (oral hygiene instruc-

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Figure 4. shows the association between the age group and edentulous area of patients that were included in the study. Here, X axis represents the edentulous area and Y axis represents the frequency of age groups. This graph shows the prevalence of edentulous is more common in 45 to 60 years(82%).
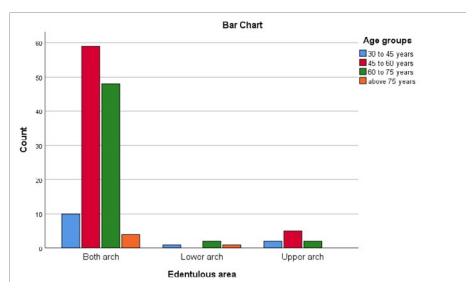

Table 4. Chi square correlation between the age groups and edentulous area.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.761ᵃ	6	.096
Likelihood Ratio	9.689	6	.138
Linear-by-Linear Association	1.387	1	.239
N of Valid Cases	134		

a. 9 cells (75.0%) have expected count less than 5. The minimum expected count is .15.

Figure 5. Descriptive distribution showing the association between systemic disease and different age groups. Here, X axis represents the systemic disease and y axis represents the frequency of age groups. This graph shows the higher prevalence of diabetes in 45 to 60 years patients(54%).
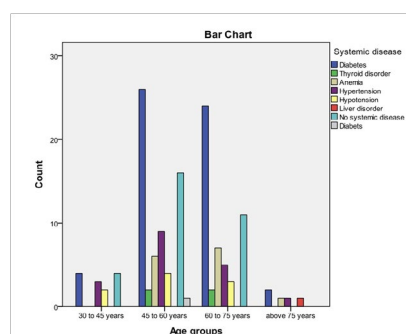

Table 5. Chi square correlation between systemic disease and age groups.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.714ᵃ	21	.024
Likelihood Ratio	19.615	21	.546
N of Valid Cases	134		

a. 23 cells (71.9%) have expected count less than 5. The minimum expected count is .04.

tions) and nutritional counselling should be given to the patients, which would be an ideal measure in the prevention of anemia.

Conclusion

The present study reveals anemia is more common among 45 to 60 age grouped completely edentulous females. Anemia is easily preventable as well as treatable and the available measures are relatively affordable. This study shows a strong relation between edentulism and anemia. Periodical screening, health check ups and routine hemograms must be performed. The patient should be motivated and educated about the importance of a balanced diet and nutritional supplement. Further studies with a larger sample size are required to estimate the exact prevalence of anemia in a greater population. So that appropriate preventive and treat-

ment measures can be initiated.

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