Review Article

Study on the incidence and prevalence of oral manifestations in anemic patients

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ABSTRACT

The main aim of this study is to find the clinical manifestations in varied hemoglobin (Hb) level in anemia and to find the varied oral manifestations in patients with anemia. Decrease in the Hb concentration of the blood below the normal range (normal Hb levels: male - 13.5–17g/dl; female - 12–15g/dl) is known as anemia, and thereby, this study is conducted on people with pre-existing anemia. The various oral manifestations in anemic patients were examined to establish the influence and relationship between the decrease of Hb value and the different oral manifestations.

KEY WORDS: Anemia patients, General manifestation, Oral manifestation

INTRODUCTION

Background and Purpose

The WHO stated anemia as "a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiologic needs, which vary by age, sex, altitude, smoking, and pregnancy status."[1] Iron deficiency is thought to be the most common cause of anemia globally, although other conditions such as folate, Vitamin B12 and Vitamin A deficiencies, chronic inflammation, parasitic infections, and inherited disorders can all cause anemia. Although the most common general manifestations are fatigueness, weakness, dizziness, and drowsiness, it is not seen in all anemic patients. Similarly, there are common oral manifestations of anemia such as angular cheilitis, parlour oral mucosa, and depapillation of the tongue, but all manifestations are not seen in all anemic patients.

Thus, this study aims to identify the relationship between the presence of anemia and its effect in the oral hygiene in different hemoglobin (Hb) concentration.

Scope of Study

This study is conducted to investigate the following question: Whether oral manifestations is a common phenomena in anemic patients? Whether there is a strong relationship between Hb concentration in the blood and the oral manifestations? This study is used to examine the common manifestations of anemia such as angular cheilitis, pigmentation, gum bleeding, aphthous-like ulcer, and glossitis and its association with varied hemoglobin concentration.

Target Population

Keeping in mind the study's goals, the study was conducted on patients with known anemia. Patients were subjected to Hb concentration and red blood cell count count test and data were collected. A total number of samples are 50, in this 10 are males and 40 are females.

The significance of subjects taken for this study is that

- Most of the patients study were anemic and had varied Hb values ranging from 6.2 to 9.0 g%.
- The distribution of female and male samples was examined in the ratio of 80:20.
- Most of the subjects taken are found to have a good dental health awareness and practising reasonable dental care.

EXPERIMENTAL

The study was conducted in anemic patients visiting one of the government hospitals and subjected the visiting patients, to the below mentioned four step process.

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Step 1: Interviewing

As part of the interview, patients are approached in person and the study was introduced, and informed consent forms duly signed by patients were first collected. Data are collected during the interview on information of the patient such as name, age, sex, occupation, their oral hygiene awareness, and their dental care practices and all findings were documented.

Step 2: General and Oral Examination

Patients were inspected for the presence, severity, and occurrence of various general and oral manifestations of anemia.

Step 3: Briefing

Patients were briefed of the existing oral manifestations and were suggested to take appropriate care for prevention and cure of such manifestations. Oral hygiene instructions were given to all patients included in the study.

Step 4: Data Analysis

Collected data were collated into tables, and then, the values were converted to % of prevalence on different events, using weighted average. Weighted average ensures that the contribution % of each ranges to evenly study the prevalence, data tables were prepared using weighted average method, and the prevalence was converted to % values. This helped to find the distribution.

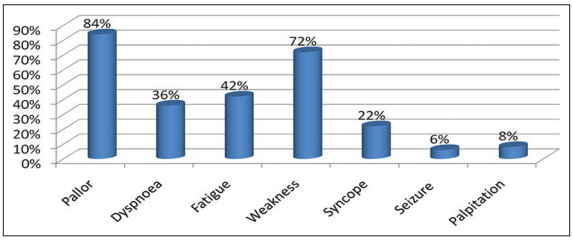

Figure 1: Occurrence of genereal manifestations in 50 anemic patients

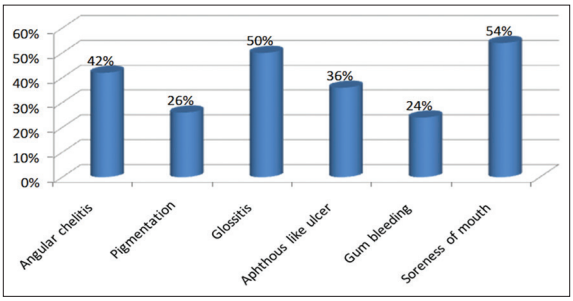

Figure 2: Occurrence of oral manifestations in 50 anemic patients

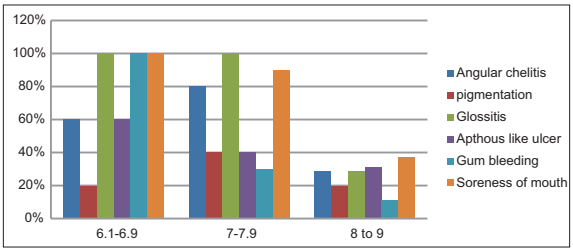

Figure 3: Occurrence of oral manifestation in varied hemoglobin level

RESULTS

Figure 1 illustrates that among 50 patients included in the study, 84% of the patients showed the presence of general manifestation as pallor which is found to be the most common followed by 72% of the patients having weakness. 42% of them showed fatigue, 36% of them had dyspnea, 22%, 8% and 6% of the patients showed syncope, palpitation and seizure respectively.

Figure 2 shows the significant presence of dental manifestations such as angular chelitis (42%), pigmentation (26%), gum bleeding (50%), aphthous-like ulcer (36%), glossitis (24%), and soreness of mouth (54%) among 50 patients included in the study.

Figure 3: Depicts the presence of oral manifestations under three categories of hemoglobin levels. Patients with hemoglobin range between 6.1-6.9g/dL showed maximum amount of distribution of soreness of mouth, gum bleeding and glossitis followed by angular chelitis and apthous like ulcer. Only around 20% of the patients showed oral pigmentations. Glossitis was predominantly found in patients with hemoglobin level ranging from 7.1 to 7.9g/dL followed by soreness of mouth and angular chelitis. Around 40% of the patients showed the presence of oral pigmentations and apthous like ulcer and around 25% of them had bleeding gums. Compared to the other two categories, patients having hemoglobin level from 8 to 9g/dL showed less oral manifestations and were more or less equally distributed. Around 35% of the patients were having soreness of mouth which is noted to be the highest in this category and around 10% of gum bleeding which is the lowest.

DISCUSSION

There were several studies conducted on anemia and oral manifestations.

Wu *et al*. concluded that burning sensation of oral mucosa, lingual varicosity, dry mouth, oral lichen planus, and atrophic glossitis were the five leading oral manifestations for iron deficiency anemia patients.[2] In our study, about 54% of anemic patients had soreness of mouth and about 50% of the patients had glossitis.

Brennan concluded that oral petechia, gingival hyperplasia, spontaneous gingival bleeding, and herpetic lesions were the leading oral manifestations

for aplastic anemia.[3] In our study, only 20% of the anemic patients had gum bleeding.

Wang *et al*. concluded that burning sensation of oral mucosa, lingual varicosity, dry mouth, atrophic glossitis, and numbness of the oral mucosa were the five leading oral manifestations for thalasemmia triat patients.[4]

Graells *et al*. concluded that glossitis is the most common oral manifestation of iron deficiency anemia.[5] In our study, about 50% of the patients had glossitis.

Zegarelli *et al*. concluded that pallor of the oral mucosa represents the most frequent oral manifestation in patients with hemolyticanemia.[6]

Mehendens, Okafar and Patricia Helena concluded that mandibular pain, pallor of the oral mucosa, and delayed tooth eruption were the most common oral manifestations in sickle cell anemia, whereas atropy of the tongue papillaewas found to be in low prevelance.[7-9]

Among these studies, the most common oral manifestations was pallor of the oral mucosa. In our study, the most common oral manifestations are soreness of mouth and glossitis among 50 anemic patients.

CONCLUSION

Based on the study conducted and the analysis of varied data collected through, this study would like to conclude with the following four significant points:

1. In spite of the basic awareness of oral hygiene and reasonable dental care taken, certain amount of oral manifestations specifically the manifestations such as soreness of mouth, glossitis, and angular chelitisare mostly prevalent in the anemic patients.
2. All oral manifestations are not seen in all anemic patients.
3. There is a directly proportional relationship found between the oral manifestations with decreased Hb levels.
4. In few cases, oral manifestations are not evident at fairly high Hb concentration. Hence, early diagnosis of unknown anemic patients is essential to prevent the complication.

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