

## Original Research

### Prevalence of systemic hypertension and anaemia in dental patients- A cross sectional study

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#### ABSTRACT:

**Background:** Majority of the dental patients coming to dental OP may have some of the systemic diseases and it may have implications on the diagnosis, treatment and prognosis. In this study two common systemic diseases (hypertension and anaemia) were taken to know the prevalence of it in dental patients. The purpose of this study was to know the presence of high range of blood pressure and low levels of haemoglobin in dental patients and some of its common oral manifestations. **Materials and methods:** 498 patients aged above 20 years, were randomly selected. Range of blood pressure were recorded using sphygmomanometer and stethoscope. Haemoglobin percentage was also tested and noted. **Results:** Among 498 patients 121 (24.2%) patients showed high recording of blood pressure. Patients without history of hypertension with high recording of blood pressure were 30 (6.02%) oral manifestation associated with hypertension is gingival hyperplasia 16 ( 3.2 %). Among 498 patients 203 ( 40.7%) patients showed low value of Haemoglobin% (less than 12 for males less than 10 for females. Common oral manifestations noted in patients with low haemoglobin value are glossitis 22(4.41%), fissures in tongue 23(4.6%), pallor of oral mucosa 4 (0.8%), angular cheilitis 14 (2.8%). The association of presence of high blood pressure and low haemoglobin level with age and gender was analyzed with the Chi-square test. **Conclusion:** Among 498 patients 24.2% were found to have high BP readings and 40% of patients were found to have low levels of haemoglobin. Knowing the presence of systemic diseases is must before diagnosing and treating the dental patients. Some dental patients may not be aware that they are having blood pressure and anaemia. In such cases treatment procedures can get complicated. So regular screening for these systemic diseases is must during every dental visit. Similar studies with larger samples in different areas can give a better idea about the prevalence of increased blood pressure

**Key words:** Hypertension, anaemia, oral manifestations.

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#### INTRODUCTION

Oral tissues are in direct physical continuity with those of the rest of the body(1), so people who come for dental treatment may have some systemic conditions which will compromise dental procedures or lead to a serious complications. It is very essential to know the presence of systemic conditions and its oral manifestations before treating the dental patients. The most common worldwide systemic diseases are hypertension and anaemia.(1)(3) The prevalence of hypertension is reported all around the world. World Health Organisation termed hypertension as the "silent killer". It is also considered as an iceberg

disease because its unknown morbidity rate overtakes the known morbidity rate. Hypertension is one of the cardiovascular risk factor ,if the systolic blood pressure goes beyond 180 the patient may undergo hypertensive crisis according to American heart association(2). Anaemia is a condition in which the number of red blood cells (and consequently their oxygen-carrying capacity) is insufficient to meet the body's physiologic needs(4). It deals with cardiac dysfunction and myocardial ischaemia if left untreated it may cause left ventricular dysfunction and may lead to heart failure.

Hence the aim of this study is to detect the prevalence of systemic hypertension, anaemia in patients visiting the

dental op and to identify some of the common oral manifestations of both the above mentioned systemic diseases.

**MATERIAL AND METHODOLOGY**

This cross sectional study was conducted in Vinayaka Missions Sankarachariyar Dental College. A total of 498 dental patients were randomly selected aged 20 years and above non-cooperative patients were excluded from the study .The patients with and without history were noted and all the patients were screened for BP and anaemia .BP were recorded using sphygmomanometer and stethoscope, to rule out Hb% patients were sent to haematology lab. According to AHA and ACA systolic BP more than 120 is considered as elevated and more than 130 is considered as hypertension(2).According to WHO Normal Hb range for males is 14 g/dl and for females 12g/dl. In our study males Hb % < 12 and females with Hb%< 10 were considered as anaemic(4). All the data regarding hypertension, anaemia and oral manifestations were recorded in the data sheet respectively and statistical analysis were done.

**RESULTS**

Among 498 patients 121( 24.2%) patients showed high recording of blood pressure (males- 53(10.6%),

females – 68 (13.7%) aged above 40. Patients without history of high blood pressure with high recording of Bp were 11 (2.2% ) and female patients 19 (3.8%).oral manifestation associated with hypertension is gingival hyperplasia 16 ( 3.2 %) all the patients with gingival hyperplasia were known hypertensives and they are under medication for hypertension

Among 498 patients 203 (40.7%) showed low value of Hb% they were aged above 35 in both males and females. Among that males 92 (18.4%), females – 111(22.2%) of patients showed low value of Hb % (less than 12 for males less than 10 for females). Among the 40.7% only (2.4%) are known anaemic patients (males-3(0.6%), females-9(1.8%). Patients who were without history of anaemia with low level of haemoglobin in males 81(17.8%) and in females 102 (20.4%). common oral manifestations noted in patients (both males and females) with low haemoglobin value are glossitis 22(4.41%), fissures in tongue 23 (4.6%),pallor of oral mucosa4 (0.8%),angular cheilitis14(2.8%). Association of elevated blood pressure and anaemia with gender is not significant p value is not significant, Association of BP and anaemia with oral manifestations is highly significant (p=0.001)

TABLE 1 : Percentage of individuals screened for hypertension and percentage of individuals with hypertension.

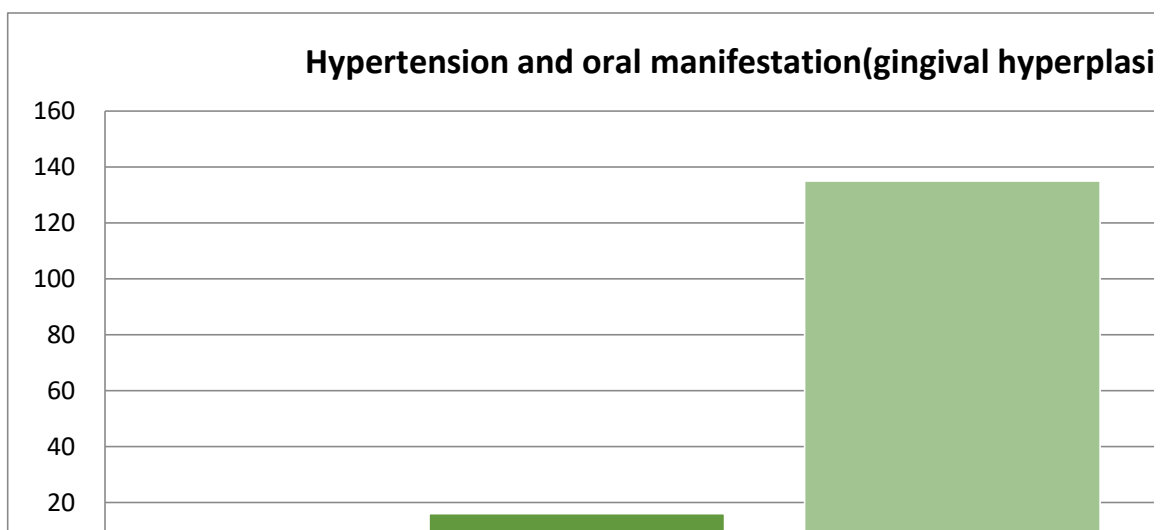
Gender	Total no. of individuals	percentage	No. of hypertensives	percentage
Male	278	55.8%	53	10.6%
Female	220	44.1%	68	13.6%

TABLE 2: Patients with and without history of hypertension

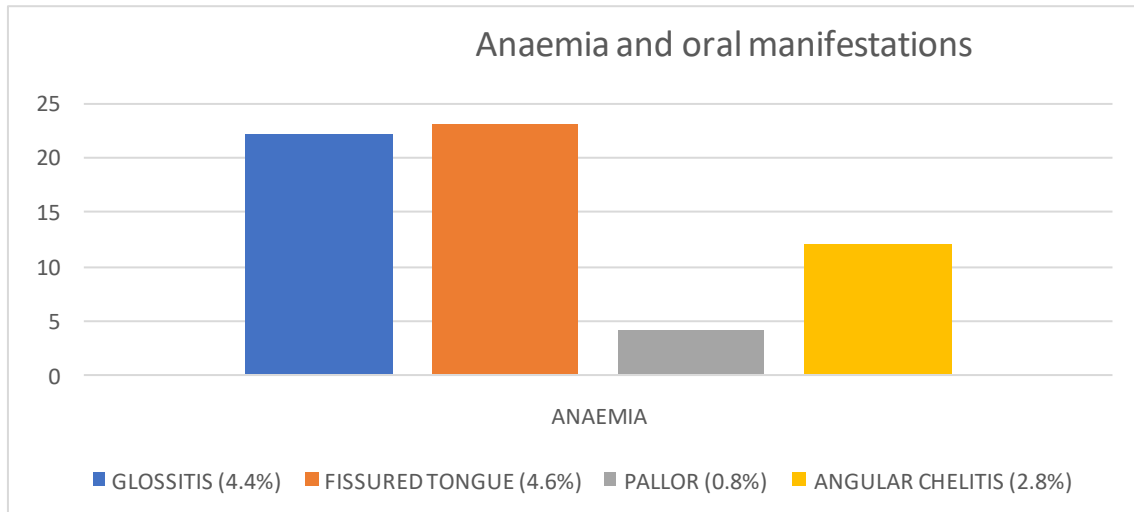
Patients without hypertensive patients	Males : 11(2.2%)
	Females: 19(3.8%)
Patients with history of hypertension	Males :42(8.4%)
	Females :49(9.8%)

TABLE 3: Percentage of individuals with low level of haemoglobin

Gender	No.of patients with low level of Hb %	Patients with history of anaemia	Patients without history of anaemia
Male	92(18.4%) Hb% < 12	3(0.65%)	89(17%)
Female	111(22.2%) Hb% < 10	9(1.8%)	102(20.4%)



Number of patients with gingival hyperplasia along with blood pressure (systolic-above 130mmHg)



Patients with anaemia and some of its oral manifestations (Hb% less than 10)

**DISCUSSION**

This study was designed to assess the prevalence of systemic hypertension and anaemia in dental patients reporting to dental OPD in Vinayaka Missions Sankarachariyar Dental College, Salem.

Hypertension is one of the major public health problem in India and globally(5). Anaemia is a symptom complex that can be caused by numerous diseases and it have oral manifestations that dentists must able to recognize.(6)

According to the original research article in the year 2018 by the authors RajaTK, Muthukumar, Anisha, the overall prevalence of hypertension in their study population is 40.7% in 225 patients they were between the age group of 50 to 60 years(7). In our study the result shows among the 498 patients 24.2% of patients showed high range of blood pressure they were aged above 40years, females show high range of Bp when compared to males.

Prashant K, Mastan KMK, Chowdary R , Shanmugam K in the year 2014 showed that out of 485 patients 79 patients have gingival enlargement and they were under medication(3). In our study only 16 patients had gingival hyperplasia and they were under medication for hypertension and 2 patients had gingival enlargement they were not under medication for hypertension

S. Kennet in the year 1967 showed that 14% of women and 3% of men were anaemic(8). In our study that males 92 (18.4%) ,females – 111(22.2%)of patients showed low value of Hb% (less than 12 % for males and less than 10% in females).In both the studies female had high prevalence of anaemia.

Scott S , Ragavendra S, in the year 2005 specified that common finding in patients with anaemia is pallor, which can be noted in nail beds,palpebral conjunctiva and oral mucosa. Additionally spoon shaped finger nails atrophy of tongue papillae can be seen.In our study common oral manifestations noted in patients (both males and females) with low haemoglobin value are glossitis 22(4.41%),fissures in tongue 23( 4.6%),pallor of oral mucosa 4 (0.8%), angular cheilitis 14(2.8%).Sudarshan Ret al in the year 2015 specified that exact cause of fissured tongue is unidentified and it is presented in

various categories of patients with other systemic conditions also .(6)(9)(10)

Zaidan FT in the year 2008 specified that in his study 29 patients with angular cheilitis were presented with anaemia(11) .In our study 14 patients with angular cheilitis were noted and all the patients were presented with anaemia.

Swarup N et al, in the year 2018showed that Atrophic glossitis is considered to be an important indicator for nutritional deficiency anemias .They also stated that an oral medicine expert can be the first to observe the lingual status, and should be familiar with the different diagnoses of these conditions, e.g., being able to link lingual abnormalities with specific etiologic causes(12)(13).In our study 4.41% of patients showed glossitis they were aged above 45 and they were presented with low levels of haemoglobin i.e less than 9 %.

To conclude that oral cavity is considered as the mirror of whole body as it is in direct physical continuity to rest of the body. It is must to know about the various systemic conditions and its oral manifestations for all the dentists. Hypertension is an important public-health challenge world wide (14). Prevention, detection, treatment, and control of this condition should receive high priority. Hence the current study is done to screen the presence of systemic hypertension, anaemia and some of its oral manifestations. Thereby critical life threatening situations in dental chair can be avoided.Among 498 patients 24.2% were found to have high BP readings and 40% of patients were found to have low levels of haemoglobin. Some dental patients may not be aware that they are having blood pressure and anaemia. In such cases treatment procedures can get complicated. So regular screening for these systemic diseases is must during every dental visit. Similar studies with larger samples in different areas can give a better idea about the prevalence of increased blood pressureIn our study the patients who were newly diagnosed as anaemic and hypertensives were referred to general physicians for further managements.

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