

Cross-sectional research to assess the occurrence of Hypertension among patients undergoing dental treatment in a rural tertiary centre

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Abstract

Objective: A few cardiovascular conditions that have been identified as major cause of death is hypertension. The course of oral disease as well as the responsiveness to dental treatment could be affected by hypertension. The purpose of this was to ascertain the occurrence of hypertension and the most prevalent mouth complaint among dental patients. **Material & Method:** The measurement of the blood pressure of all the patients aged 18-70 years who were attending the dental clinic was carried out using a sphygmomanometer and stethoscope. **Results:** Out of 1000 patients reported to the dental OPD 305 (49.9%) were detected of hypertension. Out of these diagnosed cases of hypertension, 128 were aware of the hypertension problem and 177 were detected of hypertension during dental examination in the dental OPD. Dental examination revealed various dental problems in these hypertensive patients, with the highest prevalence of apical periodontitis at 28.64%. **Conclusion:** Some dental patients were unaware of their blood pressure levels. All dental patients need to be screened for hypertension to avoid complications.

Keywords: Hypertension, Glomerulonephritis, Diagnosis, Periodontitis

INTRODUCTION

Since the advancements in health research, people now live longer. People typically see an increase in systemic diseases and issues with their oral health as they age. Dental clinic patients may have systemic medical issues for which they are either medicated or not.¹ Hypertension is one of the cardiovascular diseases that has been reported as one of the common causes of death worldwide.¹ Hypertension is defined as abnormally high blood pressure (more than 120/80mm Hg) in the arteries.²

Hypertension is divided into two types:²

- 1.Primary hypertension (Essential hypertension)
2. Secondary Hypertension

Blood pressure readings can be used to detect hypertension, and once it is identified, treatment options have largely eliminated the patient's risk of cardiovascular disease and death.³ Since many patients do not routinely take their blood pressure readings, hypertension often goes unnoticed and some of the hypertensive patients on dental treatment may not be controlled.³ Adult patients with pre-hypertensive and are at increased risk of progression to hypertension have been reported. This therefore makes the measurement and monitoring of blood pressure for these patients mandatory. Some medical conditions including hypertension could alter the course of oral diseases.³ Since some dental patients may be unaware of their blood pressure levels and the fact that a dental setting is viewed as a stressful environment, it makes it more important for all dental patients to be screened for hypertension. The stress of a dental visit may artificially raise the blood pressure induced by the anticipation and actual dental treatment.^{3,4} The study objective was to determine the occurrence of hypertension among dental patients and their common presenting oral complaints, at rural tertiary care centres.

Material & Methods

This study was carried out at the rural tertiary care centre in Kanpur. Patients aged 18-80 years who came to the centre for their oral health complaints, were included. The study aimed to find the occurrence of hypertension in patients reporting to the dental OPD and thereby help in imparting awareness of hypertension among the patients. The hospital's ethical committee provided the ethical approval for the study. The study criteria were explained to the patients and only those who agreed were allowed to participate with a signed consent form. Determination of blood pressure levels was carried out using a digital sphygmomanometer and stethoscope with the patient in a comfortable sitting supine position. The blood pressure measurement was carried out on the patient's first visit. All known hypertensive were noted, and their blood pressures were measured and recorded. Blood pressure measurements were repeated when the patient was less anxious to minimize the contribution of fear/anxiety of dental treatment to the increase in blood pressure.

Examination of dental structures was carried out on the Dental chair using the Dental examination set and standard Dental lighting. Diagnosis of the patient's Dental condition was made and patients were referred to specialized departments for treatments. Patients whose blood pressure levels remained above 120/80 mm of Hg were considered hypertensive while those whose levels were below 120/80 but above 110/70 were recorded as normal. Analysis of all stored and collected data was done using simple frequencies and percentages.

Results

A total of 1000 patients were examined in dental OPD and were included as the study group for the present study. Out of these 1000 patients, 600 (60%) were males and 400(40%) were females as depicted in Table 1.

Gender	Total patients N (%)	Hypertensive group N (%)
Male	600 (60%)	195 (63.9%)
Female	400 (40%)	110 (36%)

Table 1: Gender based distribution of hypertension in patients

The study group was further categorized according to age into 18-30; 31-40; 41- 50; 51-60 and 61-70 and more than 70years and is represented in Table 2.

Age (years)	Hypertensive group N (%)
18-30	24 (7.8%)
31-40	11 (3.6%)
41-50	190 (62.2%)
51-60	30 (9.8%)
61 70	27 (8.8%)
>70	23 (7.5%)

Table 2: Hypertensive patients categorized as per the age group

Out of the total dental patients in the study group 305 were diagnosed with hypertension and they formed the study (case) group and the remaining 306 that were not hypertensive formed the control group which is depicted in Table 3. On recording the medical history of the 305 diagnosed cases of hypertension, 128 were aware of the hypertension problem and 177 were detected of hypertension during dental examination in the dental OPD.

Hypertensive patients	
Diagnosed case 128	Undiagnosed case 177

Table 3: Incidence of diagnosed versus non-diagnosed hypertensive patients

According to the gender 195 males and 110 females were diagnosed with hypertension as shown in Table 2. Various oral and dental problems were detected in the hypertensive group and are presented in Table 4, with the highest prevalence of apical periodontitis 60%

followed by chronic marginal gingivitis 8.1%, tooth mobility 21.3%, dental caries 6.5% and lastly pericoronitis in 4.9%.

Oral disease	Hypertensive patients N (%)
Chronic marginal gingivitis	25 (8.1%)
Pericoronitis	15 ((4.9%)
Apical periodontitis	180 (60%)
Tooth mobility	65 (21.3%)
Dental caries	20 (6.5%)

Table 4: Clinical presentation of hypertensive patients

Discussion

When high blood pressure and stress are combined, patients may experience negative or even deadly outcomes.^{2,4,5} Many studies show that females are affected more with hypertension as compared to males^{4,5} but in the present study, males were more commonly affected. This suggests that males are equally at risk of hypertension as females.^{3,5,6} Patients aged in the range of 41-80 years were affected most with hypertension. From the literature, available, many studies have reported that blood pressure tends to increase with the age of patients.⁷ Elderly patients had a tendency to combine hypertension and with hypertension-related diseases.^{6,8} hypertensive Patients are at risk each time they are treated without thorough examination, medical history, and current blood pressure levels.³

Apical periodontitis on its own can be stressful and therefore make a patient susceptible to an increase of an already elevated blood pressure with its attendant complications.^{3,9} Regardless of the medications' effects on the teeth, oral health care professionals need to be aware of the actions, interactions, and side effects of the patient's prescriptions for the treatment of hypertension.^{10,11}

Conclusion

The medical and dental professions are evolving and will keep changing. More and more medically complex patients are being treated by dentists, necessitating complex services and more difficult dental treatment planning. In the Indian community, it seems that many cases of hypertension go undiagnosed and receive insufficient treatment. Several hypertensive dental patients did not know their blood pressure readings when they first arrived at the

dental facility. It is necessary to enhance the diagnosis of hypertension because treating it early on can help prevent problems from these individuals' dental treatments.

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