

Relevance of Routine Blood Pressure Associated Among Dental Patients in Patna, Bihar

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ABSTRACT

Background: Hypertension goes undetected due to absence of sign and symptoms. Hence, it is often called the 'silent killer'. The purpose of the present study was to determine the relevance of routine blood pressure associated among dental patients in Patna, Bihar.

Materials and Methods: This study was conducted among 40 patients of age 35-50 years over an period of 12 months. Relevant clinical history was taken. Trained dental personnel, using a standard mercury sphygmomanometer measured the BP. Patients who were found to have elevated BP of $\geq 140/90$ mm Hg, had their BP re-checked to confirm the elevated BP after resting for 2 to 5 minutes. Patients were categorized into Stage 1 hypertension: clinic BP is 140/90 to 160/100 mm Hg. Stage 2 hypertension: clinic BP is 160/100 to 180/110 mm Hg. Severe hypertension: clinic systolic BP is 180 mm Hg or higher or clinic diastolic BP is 110 mm Hg or higher. Statistical analysis was done by using SPSS, version 22 (SPSS, Inc., Chicago, IL) and $p < 0.05$ was considered statistically significant.

Results: This total male population in the study was 22 and 18 were female participants. On the basis of stage of hypertension all the participants are equally distributed. 12 were male and 7 were female of age group 31-40 years old. 10 were males and 11 were females of age group 41-50 years old. In pre-hypersensitive stage, hypersensitive stage I and hypersensitive

stage II males were having more systolic and diastolic blood pressure than females whereas in severe hypertension females were having more systolic and diastolic blood pressure than males. Males were having higher hypertension than females in age group 31-40 years age group but in age group 41-50 females were having higher hypertension.

Conclusion: The prevalence of hypertension is increasing with age in both men and women Therefore, our study recommends that regular checkup of blood pressure must be initiated so that remedial measure can be initiated as early as possible.

Keywords: Hypertension, Silent Killer.

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INTRODUCTION

Hypertension (HTN) is one of the most frequently encountered systemic diseases in patients visiting the dental clinic due to high prevalence of the disease worldwide.¹ High blood pressure (HBP) popularly referred to as hypertension is the major risk factor associated with cardiovascular diseases. Hence, it is often called the 'silent killer' because of this risk. It also remains the commonest noncommunicable disease globally.^{2,3}

Dental treatment protocols for hypertensive patients are not much affected if their hypertension is controlled but modifications are advised when patients present with uncontrolled hypertension.⁴ Use of dental local anaesthesia with epinephrine in these patients is considered risky because of the beta-1 effects of epinephrine on

the heart and beta-2 effect on skeletal muscle blood vessels which might result in increase in blood pressure and pulse rate.⁵ This category of patients whilst undergoing complex dental treatment may be potentially at risk of developing some complications such as myocardial infarctions or stroke in the dental chair due to fluctuations in their BP.^{6,7}

Furthermore, there is also the possibility of an increase of the BP by local anesthetic agents containing epinephrine which may result in an arrhythmia, a dangerous development in patients with hypertension.⁷ The purpose of the present study was to determine the relevance of routine blood pressure associated among dental patients in Patna, Bihar.

MATERIALS AND METHODS

This study was conducted among 40 patients of age 35-50 years over a period of 12 months. Relevant clinical history was taken. Trained dental personnel, using a standard mercury sphygmomanometer measured the BP. Patients who were found to have elevated BP of $\geq 140/90$ mm Hg, had their BP re-checked to confirm the elevated BP after resting for 2 to 5 minutes.

Patients were categorized into Stage 1 hypertension: clinic BP is 140/90 to 160/100 mm Hg. Stage 2 hypertension: clinic BP is 160/100 to 180/110 mm Hg. Severe hypertension: clinic systolic BP is 180 mm Hg or higher or clinic diastolic BP is 110 mm Hg or higher. Statistical analysis was done by using SPSS, version 22 (SPSS, Inc., Chicago, IL) and $p < 0.05$ was considered statistically significant.

Table 1: Distribution of number of participants on the basis of stages of hypertension

Stages	Number of Participants (n=40)
Pre-hypertensive patients	10
Hypertension Stage I	10
Hypertension Stage II	10
Severe	10

Table 2: Distribution of gender on the basis of age group

Age Group	Number of cases		p-value
	Males (n=22)	Females (n=18)	
31-40years	12	7	<0.05
41-50 years	10	11	

Table 3: Prevalence of blood pressure by gender

Stages	Male		Female	
	Systolic BP	Diastolic BP	Systolic BP	Diastolic BP
Pre-hypertensive patients	130 \pm 2.18	84 \pm 2.24	126 \pm 4.26	80 \pm 6.20
Hypertension Stage I	142 \pm 2.22	83.14 \pm 2.60	140 \pm 2.76	82 \pm 4.90
Hypertension Stage II	164.20 \pm 8.32	102.6 \pm 8.30	162 \pm 6.12	100 \pm 6.88
Severe	172.12 \pm 8.14	88.38 \pm 4.62	176.50 \pm 10.48	90.26 \pm 12.58

Table 4: Prevalence of blood pressure by age group

Age group	Systolic blood pressure	Diastolic blood pressure
31-40years	144 \pm 2.82	84 \pm 4.94
41-50 years	163.34 \pm 6.38	90 \pm 4.34

RESULTS

This study was conducted among 40 patients of age 30-50 years old. Total male population in the study was 22 and 18 were female participants. On the basis of stage of hypertension all the participants are equally distributed. 12 were male and 7 were female of age group 31-40 years old. 10 were males and 11 were females of age group 41-50 years old.

Table 3 shows prevalence of blood pressure by gender. In pre-hypertensive stage, hypersensitive stage I and hypersensitive stage II males were having more systolic and diastolic blood pressure than females whereas in severe hypertension females were having more systolic and diastolic blood pressure than males. Males were having higher hypertension than females in age group 31-40 years age group but in age group 41-50 females were having higher hypertension.

DISCUSSION

The developing countries are experiencing an epidemiological transition from communicable diseases to non-communicable diseases. Developed countries have already gone through this transition while developing countries are following this trend.

Modern life style pattern leads to increased risk of hypertension and cardio-vascular diseases. Systemic hypertension has an estimated prevalence of 1-2%⁸ in the developed countries and 5-10% in developing countries like India.⁹ The risk factors for hypertension include obesity, family history of hypertension, change in dietary habits, decreased physical activity, and increasing stress.¹⁰

Our study was conducted among 40 patients of age 30-50 years old. Total male population in the study was 22 and 18 were female participants. On the basis of stage of hypertension all the participants are equally distributed. 12 were male and 7 were female of age group 31-40 years old. 10 were males and 11 were females of age group 41-50 years old Table 3 shows prevalence of blood pressure by gender. In pre-hypertensive stage, hypersensitive stage I and hypersensitive stage II males were having more systolic and diastolic blood pressure than females whereas in severe hypertension females were having more systolic and diastolic blood pressure than males. Males were having higher hypertension than females in age group 31-40 years age group but in age group 41-50 females were having higher hypertension.

Umeizudike KA conducted a study and found that the prevalence of hypertension was 39.9%. Hypertension was stage 1 in 25.5%, stage 2 in 9.8% and severe in 4.6% of the dental patients. Systolic and diastolic BP increased with increasing age and was significantly higher in males than females.¹¹ The prevalence of hypertension increase with age. This rising prevalence of hypertension with increasing age in both men and women in our study is not a new finding and is also supported by the American Society of Hypertension.¹² It is important that regular assessment of the blood pressure of dental patients at each visit, past medical history and complete documentation in patients' case notes cannot be overemphasized.

CONCLUSION

The prevalence of hypertension is increasing with age in both men and women Therefore, our study recommends that regular checkup of blood pressure must be initiated so that remedial measure can be initiated as early as possible.

REFERENCES

1. Matsumura K, Miura K, Takata Y, Kurakawa H, Kajiyama M, Abe I, Fujishima M. Changes in blood pressure and heart rate variability during dental surgery. *Am J Hypertens* 1998;11:1376- 80.
2. Kearney PM, Whelton M, Reynolds K, Whelton PK, He J. Worldwide prevalence of hypertension: a systematic review. *Journal of Hypertension* 2004;22(1):11-19.
3. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: analysis of worldwide data. *Lancet* 2005;365(9455):217-223.
4. Aubertin MA. The hypertensive patient in dental practice: updated recommendations for classification, prevention, monitoring, and dental management. *Gen Dent* 2004; 52: 544-52.
5. Holm SW, Cunningham LL, Bensadoun JE, Madsen MJ. Classification, pathophysiology, and management during outpatient sedation and local anesthesia. *J Oral Maxillofac Surg* 2006; 64; 111-21.

6. Herman WW, Konzelman Jr WW, Prisant M. New national guidelines on hypertension: a summary for dentistry. *J Am Dent Assoc* 2004;135:576-584.
7. Thompson AL, Collins MA, Downey MC, Herman WW, Konzelman JL Jr, Ward ST, Hughes CT. Prevalence and Severity of Hypertension in a Dental Hygiene Clinic. *J Contemp Dent Practice* 2007;(8)3:13-20.
8. Munter P, He J, Cutler JA, Wildman RP, Whelton BK. Trends in blood pressure among children and adolescents. *JAMA*. 2004 291:2107–13.
9. Bagga A, Jain R, Vijayakumar M, Kanitkar M, Ali U. Evaluation and management of hypertension. *Indian Pediatr*.2007 44:103–21.
10. Mohan B, Kumar N, Aslam N, Rangbulla A, Kumbkarni S, Sood NK, et al. Prevalence of sustained hypertension and obesity in urban and rural school going children in Ludhiana. *Indian Heart J*. 2004 56:310–14.
11. Umeizudike KA, Ayanbadejo PO, Umeizudike TI, Isiekwe GI, Savage KO. Relevance of Routine Blood Pressure Assessment among Dental Patients in Lagos, Nigeria. *J Contemp Dent Pract* 2013;14(6):1145-1150.
12. American Society of Hypertension. Patient information guide to understanding hypertension. New York 1999-2000.

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