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Case Study

A Case Study for Prevalence of Non-communicable Disease in Sangli District - Hypertension and Diabetes

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Abstract

Objective: Diabetes Mellitus and Hypertension are familiar non communicable diseases. Despite the rising numbers of such affected patients, comprehensive prevalence data of these diseases is lacking. The focus of this study is to collect data on the prevalence of hypertension and diabetes mellitus in Sangli district of Maharashtra.

Materials and Methods: This is a prospective study that was conducted at the Oral and Maxillofacial Surgery department of Bharati Vidyapeeth (Deemed to be University) Dental College and Hospital, Sangli, between June 2014 to June 2015. 500 patients were enrolled in this study from all over Sangli district, ages between 40 to 60 years. Consent was taken from all the participants.

The data of Patient (medical history, sedentary lifestyle and laboratory values) were collected and analyzed accordingly.

Results: During June 2014 to June 2015, 500 eligible patients from Sangli were enrolled. As per clinical history 35 patients were hypertensive, 28 patients were Diabetic, 34 patients were suffering from hypertension and diabetes both. After evaluation we diagnosed new cases. 88 patients were found to be hypertensive, 64 diabetic and 18 patients were hypertensive as well as diabetic. Total 53.4% were diseased.

Conclusion: There is lack of awareness about hypertension and diabetes mellitus in Sangli district. The government of Maharashtra has to take adequate awareness health check up camps at Sangli district to educate the population and control the diseases.

Keywords: Hypertension; Diabetes Mellitus; Sangli

Introduction

The prevalence of hypertension and diabetes mellitus has been growing in India and has become a cause of premature illness and death. India stands out to be the second most populated country in the world.

India being diabetes capital of the world with 41 million people being diabetic. In today's world every fifth diabetic patient is an Indian [1]. Mohan., *et al*. CURES cohort study results concluded that every fifth person is a hypertensive in Chennai which equals or even outstrips diabetes [2].

An equal ratio of diabetes mellitus and hypertension are found in both developed and developing countries. Etiology of these non-communicable diseases remains multifactorial. Genetic or environmental factors could be etiology. Usually these are found in

older age groups. These diseases pose an increased risk factor for stroke, renal failure, disability and increased expanses, coronary heart disease [1].

Statistics in diabetes show that in India 3.8% in rural and 11.8% in urban adults suffer from diabetes mellitus. Hypertension statistics show that prevalence in rural area is between 12 to 17% and in urban area its 20 to 40% [3].

China and India are expected to witness a peak in diabetes cases in future. India currently, have around 40 million cases of DM and these numbers are projected to increase to 87 million by the year 2030 [4]. Increase in the number of diabetic patients India has been titled as the 'diabetic capital of the world [5]. Since the last three decades the prevalence of type 2 DM has increased from 1.2% to 11% [6]. There is a 2-4 fold greater death threat from cardiovascular disease in the patient with DM as compared to patient without DM [1].

The increase in prevalence is due to adoption of western lifestyles and urbanization stress in developing countries which leads to the morbidity associated with insalutary lifestyles are not declining [7]. Idiopathic genetic and environmental factors play a major part in HT. the economy and standard of living of individuals are influential factor in adults with high blood pressure [8].

The presence of hypertension in diabetic patients considerably increases the risks of diseases in heart, kidney and retina. There is 75% increase in risk of CVD when diabetes is adjuvant with hypertension resulting in morbidity and mortality of high risk population. Generally HT in type 2 diabetic persons clusters with other CVD risk factors such as micro albuminuria, central obesity, insulin resistance, dyslipidemia, hyper coagulation, increased inflammation and left ventricular hypertrophy [9]. The group of risk factor in diabetic patients leads to development of CVD, causing mortality in patients with type 2 DM. The interrelation between DM and HT put a risk for patient to atherosclerotic cardiovascular disease [10].

It is essential on the part of government to know the prevalence of these diseases and take adequate measures to educate and control these diseases. To estimate the prevalence of disease, it is best if field studies are carried out, thus we carried out this present study to determine the prevalence of HTN and DM in Sangli district.

Subjects and Methods

Study design

A study carried out from June 2014 to June 2015 as a prospective observational study.

It was conducted in Sangli district. The target population was of 500 patients who visited the Department of Oral and Maxillofacial Surgery Bharati Vidyapeeth (Deemed to be university) for routine dental extraction.

Eligibility criteria included patients ages >40 years and <60 years, signing an informed consent and willing to undergo screening tests.

Assessment

Patient data was collected in two steps;

- **Step 1:** The blood pressure measurement was performed using a sphygmomanometer. Hypertension defines in adults as systolic BP of 140 and higher and diastolic of 90 and higher. Due to its variability, hypertension was diagnosed only after 2 or more elevated reading.
- **Step 2:** Random blood glucose level was assessed.

The data collection form was designed with study objectives, it carried details on the following aspects:

- Demographics (age/sex)
- Medical History (Diabetes-present/absent/undiagnosed and Hypertension-present/absent/undiagnosed).

Diagnostic criteria

- Study population as complied with general guidelines for detecting diabetes and hypertension according to the American Diabetes Association (ADA) and hypertension classified according to detection, evaluation, and treatment of high blood pressure [11].
- Patients with systolic B.P.>140 mm/Hg or diastolic >90 mm/Hg were considered as hypertensive and those with random blood sugar >120 mg/dl of blood glucose levels were considered as diabetic.

Results

As per our study, we examined 500 patients presenting to our centre for routine extractions between the ages 40 to 60 years.

Demographic

The study has a population of 500 patients reporting to the OMFS department of BVP, Sangli.

The study had 56% male and 54% female.

In total 500 patients examined:

- 53.4% (267 patients) were suffering from DM or HTN or Both (Table 1).
- 18.4% (92 patients) had only diabetes. Total diabetic 28.8% (144 patients) (Table 2).
- 24.6% (123 patients) had only hypertension. Total HTN 37% (175) (Table 3).
- 10.4% (52 patients) showed DM and HTN as a combination (Table 4).
- Of the total population screened we diagnosed: 170 new cases.
- 88 new cases of hypertension.
- 64 new cases of diabetes.
- 18 new cases of DM + HTN.
- Of the already known cases that reported to our study: (97)
- 74 patients were under medications for either DM or HTN or both
- 23 patients were not under any medications despite the known status of the disease.

Total Population in the study		
Type	**Number**	**Percentage**
Not diseased	233	46.6%
Diseased	267	53.4%
Total	500	100%

Table 1

Diabetes Mellitus only		
Type	**Number**	**Percentage**
Diseased	92	18.4%

Table 2

Hypertension only		
Type	**Number**	**Percentage**
Diseased	123	24.6%

Table 3

Hypertension + Diabetes		
Type	**Number**	**Percentage**
Diseased	52	10.4%

Table 4

Discussion

Our present study is set out for understanding the prevalence of DM and HT reported from Sangli district. Barely any information is available about prevalence of DM and HT from Sangli. In our study total of (144) 28.8% patients were diabetic. Following prevalence percentages are found in study for DM- Tamil Nadu (40.3%), Andhra Pradesh (37.5%), Karnataka (34.5%), Madhya Pradesh (33.7%), Delhi (32.5%), West Bengal (31.0%), Gujarat (28.9%) [12].

Overall prevalence of HT in our study was found to be 37% (175 patients). Prevalence of HT was greater compared to DM in current study. Following prevalence percentages are found in study- Madhya Pradesh (52.0%), Andhra Pradesh (49.4%), Delhi is (48.2%), West Bengal (46.5%), Tamil Nadu (39.5%), Karnataka (32.1%) [12].

Recently in India, it is found that there is sudden increase in prevalence of HT and DM. It could be because of more urbanization, sedentary lifestyle and consumption of less fibrous food materials. It is found that Indians consume more common salt [12].

In our study 97 patients were known cases of the disease but 23 patients were not taking any medication. So the rule of halves can be proved. The 'rule of halves suggest half of most common chronic disorders are undetected, that half of those detected are not treated, and that half of those treated are not controlled' [1].

Important reasons for increasing Diabetic and Hypertension cases are Obesity, Smoking, Alcoholism and Sedentarism. The results showed rise in DM and HTN in present study. So it is needed to conduct vast epidemiological studies to understand causes of increasing prevalence of DM and HTN in Maharashtra.

Conclusion

Every 5th adult individual in Indian urban cities suffers from DM as well as HTN.

Every 3rd individual in Maharashtra is affected by DM as well as HTN. The basic need of this study is to make the clinician , health care professional as well as the surgeon aware of the presence of these giant diseases, so that complications of any kind with regards to these diseases can be prevented, thus providing better treatment outcomes for those patients.

Current study helps in spreading awareness for early diagnosis and management of Hypertension and Diabetes Mellitus in Sangli district.

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