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RESEARCH ARTICLE

A STUDY OF PREVALENCE AND SEVERITY OF NICOTINE DEPENDENCE IN CHRONIC HYPERTENSION- IN NORTH TELANGANA POPULATION

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ABSTRACT

Introduction: The significance of smoking in the hypertensive patient may be unappreciated. The risk of hypertension may be tripled in such patients. Tobacco addiction may also compromise the treatment of hypertensives. The contribution of nicotine to adverse cardiovascular events has been a concern, both among physicians and patients. Nicotine has also been reported to have adverse effects on endothelial function and may impair insulin tolerance, although the biologic relevance of these effects in individuals remains unclear. **Materials and methods:** the study was conducted in SVS Medical college, Mahboobnagar, for a period of 4 months. Study sample consisted of 100 chronic hypertensive patients diagnosed by general physician and nicotine dependence was assessed using a questionnaire and diagnosed according to ICD-10 RDIC criteria. Later, severity of nicotine dependence in these patients is assessed using Fagerstrom scale. **Results:** Nicotine dependence was more common in older group when compared to younger individuals with chronic hypertension. Male individuals were more affected with nicotine dependence when compared to female population which was statistically significant. **Conclusion:** In conclusion this survey demonstrates the increased incidence and prevalence of nicotine dependence in chronic hypertensive patients in North Telangana population. The severity of nicotine dependence is more affected by the socioeconomic status and urbanization. As the age of individuals increased, severity of nicotine dependence increased which was statistically significant.

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INTRODUCTION

Hypertension, also known as high blood pressure, was defined as systolic blood pressure (SBP) of at least 140 mmHg, or diastolic blood pressure (DBP) of at least 90 mmHg (WHO Expert Committee, 1996). One in three adults worldwide, according to the report, has raised blood pressure – a condition that causes around half of all deaths from stroke and heart disease (WHO Expert Committee, 1996). Globally, the overall prevalence of raised blood pressure in adults aged 25 and over was around 40% in 2008. People with uncontrolled hypertension rose from 600 million in 1980 to nearly 1 billion in 2008. Worldwide, raised blood pressure is estimated to cause 7.5 million deaths, about 12.8% of the total of all deaths. Studies from India and Bangladesh have shown that there is an increasing trend in the prevalence of hypertension (Hypertension study group, 2001). Trends in hypertension prevalence in India have shown a high prevalence of hypertension in both urban and rural areas and these findings are in consonance with other regions of Asia where it has been reported that, at any one time, about half of all individuals have high blood pressure (Rodgers, 2000). Many epidemiological studies from several parts of India have shown

a significant correlation of smoking or tobacco use with hypertension prevalence (Gupta, 1999; Pais, 2001; Sharma, 2000). Of the many known risk factors of hypertension such as heredity, faulty food habits, excess body weight and sedentary life style nicotine consumption stands as the prominent one as its prevalence is increasing at a much rapid pace than in previous years. In the developing countries such as India, tobacco consumption is rising by 3.4% per year as of 2002.⁷ It is predicted that 1.5 to 1.9 billion people will be smokers worldwide by 2025.⁸ Nicotine consumption is the most important modifiable risk factor for several fatal conditions such as hypertension (HTN) coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD) and carcinomas of nasopharynx, bronchus etc (Dwivedi et al., 2000). Consumption of cigarette and other tobacco products and exposure to smoke are responsible for about five million deaths a year, mostly in poor countries and poor population.¹⁰ Out of the many known forms of tobacco consumption smoking is the most used form (WHO/WPRO-Smoking Statistic, 2005). ICD-10 defines substance dependence as –'A cluster of physiological, behavioural and cognitive phenomena in which the use of a substance or a class of substances takes

on a much higher priority for a given individual than other behaviours that once had greater value.' The central descriptive characteristic of the dependence syndrome is the desire (often strong) to take psychoactive drugs (which may or may not have been medically prescribed) (World Health Organization, 1992). Many general population surveys have demonstrated a significant association between current smoking and psychiatric symptoms depression and anxiety. With this background we tried to evaluate the prevalence and severity of tobacco smoking in patients having hypertension.

Aims and Objectives

- To know the prevalence of nicotine dependence in patients having chronic hypertension.
- To assess the severity of nicotine dependence in them.
- To find the association between the severity of nicotine dependence with the socio demographic variables.
- To correlate the severity of nicotine dependence with clinical variables such as age of nicotine dependence and duration of nicotine dependence.

MATERIALS AND METHODS

Place of study: S.V.S medical college, mahaboobnagar.

Time of study: from July 2012 to October 2012.

Study sample: The study sample consists of 100 patients diagnosed by the general physician as having chronic hypertension as per the WHO criteria. BP was measured in the sitting position after five minutes of rest. In addition, participants were advised to avoid exercise, alcohol, cigarette smoking and coffee/tea at least 30 minutes before BP measurement. BP was measured using a standard mercury sphygmomanometer. Two readings at five minute intervals as per the WHO guidelines were recorded. The prevalence of nicotine consumption is assessed by questioning them about smoking habit and its nature. Then the diagnosis of nicotine dependence is made according to the ICD-10 RDC criteria, which is later confirmed by a senior consultant in the department of psychiatry. Later the severity of nicotine dependence in these patients is assessed using Fagerstrom scale.

Tools used

Semi structured proforma: To record the socio demographic and clinical details of the patient.

Fagerstrom test for nicotine dependence: To assess the severity of nicotine dependence. Statistical analysis was done using SPSS 16v.

Criteria for selection

Inclusion Criteria: Those who are physically fit to answer the questions.

Exclusion Criteria: Those who did not give consent for the study.

RESULTS

Table no.1 shows the prevalence of tobacco smoking in our study sample. Of the total hundred patients of hypertension

sixty met the criteria for nicotine dependence according to the ICD-10 RDC and the rest forty didn't. We divided patients in to five categories according to their age.

Table 1. Prevalence of hypertension with smoking

TOTAL SAMPLE	SMOKING - PRESENT	SMOKING - ABSENT
100	60	40

In the current study people belonging to the age group of 40 yrs to 50 yrs are found to have high severity of smoking compared to other age groups and this finding of ours is statistically significant. Our study sample predominantly contains males (91.66%) among which 81.81% were found to have high level of nicotine dependence whereas in females it is only 40%. The association of gender type with the severity of nicotine dependence is statistically significant. There is a statistically significant association between the education level and severity of smoking. Among the illiterates 77.77% were found to have high severity of smoking. Almost all the patients in the study sample are employed (98.33%) and the employment status didn't show any significant relation with the severity of tobacco smoking.

Basing on the monthly income the study population is divided into five groups and in all of them majority had high nicotine dependence but this is still more prominent among two groups, those having very low income i.e., <5,000 per month and those earning >20,000 per month which is statistically significant. Most of the patients reside in the rural area (90%) when compared to those hailing from an urban background (10%) and there is 100% prevalence of high nicotine dependence in the later. However it is statistically insignificant. The mean age of nicotine dependence in the current study is found to be 20.55 ± 4.3 . Among the sixty hypertensive patients those who developed nicotine dependence between 10-20 years of age had predominantly high level of dependence (84.61%) than those who became dependent at the later age. Statistically significant association is found between age of dependence and the severity ($p < 0.05$) and both these variables are negatively correlated ($R = -0.3$) i.e., earlier is the age of dependence greater is the severity of dependence. On comparing the duration of nicotine dependence with the severity, it is found that there is a weak positive correlation (0.024) between them which implies the fact that greater severity of dependence is found in chronic smokers. However there is no statistically significant association between the two variables.

DISCUSSION

Our study sample predominantly contains males (91.66%) among which 81.81% were found to have high level of nicotine dependence whereas in females it is only 40%. The association of gender type with the severity of nicotine dependence is statistically significant. This finding of ours is concurrent with several previous studies according to which smoking in India is much more common among men than women (five times higher among men than women) and gender gap declines with younger age (Corrao, 2000; Gupta, 1996; WHO, 1997; The World Health Organization, 2001; Surgeon General's Report, 2001). There is a statistically significant association between the education level and severity of smoking. Among the illiterates 77.77% were found to have high severity of smoking.

Table 2. Comparision of sociodemographic variables with severity of nicotine dependence

Variable	Severity of nicotine dependence			Statistical analysis
	High	Moderate	Low	
Age				$\chi^2=37.3; df=12 p=0.0001$
40-45 years	2	0	0	2
46-50 years	13	0	0	13
51-55 years	8	3	3	14
56-60 years	16	2	2	20
>60 years	8	3	0	11
Total	47	8	5	60
Sex				$\chi^2=34.4; df=3 p=0.000$
Male	45	8	2	55
Female	2	0	3	5
Total	47	8	5	60
Education				$\chi^2=30.93; df=9 p=0.000$
Illiterate	17	4	1	22
<5 years	3	0	2	5
6-10 years	3	2	0	5
>10 years	24	2	2	28
Total	47	8	5	60
Occupation				
Employed	46	8	5	59
Unemployed	1	0	0	1
Total	47	8	5	60
Family income				$\chi^2=39.2; df=12 p=0.000$
<5000rs/m	14	7	3	24
5000-10,000 rs/m	2	0	0	2
10,000-15,000 rs/m	28	0	2	30
15,000 -20000rs/m	2	1	0	3
>20000rs/m	1	0	0	1
Total	47	8	5	60

Table 3. Comparision of locality with severity of dependence

VARIABLE	SEVERITY OF NICOTINE DEPENDENCE			STATISTICAL ANALYSIS
	HIGH	MODERATE	LOW	
LOCALITY				$\chi^2=7.198; df=3 p=0.066$
URBAN	6	0	0	6
RURAL	41	8	5	54
TOTAL	47	8	5	60

Table 4. Comparision of age of nicotine dependence with severity of dependence

Age of nicotine dependence	Severity of nicotine dependence				Statistics
	LOW	MODERATE	HIGH	TOTAL	
10-20	0	6	33	39	$\chi^2=12.247; df=4 p=0.015$
21-30	4	2	13	19	
>30	1	0	1	2	
Total	5	8	47	60	

Table 5. Comparison of duration of nicotine dependence with severity of dependence

Duration of nicotine dependence	Severity of nicotine dependence				Statistics
	LOW	MODERATE	HIGH	TOTAL	
Years					
10-20	0	0	1	1	$\chi^2=6.031; DF=6; P=0.419$
21-30	3	2	17	22	
31-40	2	2	20	24	
>40	0	4	9	13	
TOTAL	5	8	47	60	

Such high incidence of severe dependence in the illiterate group may be due to the ignorance about health hazards of smoking and because of many psycho social stressors such as unemployment and poverty prevailing in this group. Tobacco smoking in India is inversely related to education and is highest among the illiterate and low literate groups (Subramanian et al., 2004). As per the data of CDC, tobacco use is strongly associated with low socioeconomic status (SES) and the prevalence of current smoking is greatest among adults with working class jobs, low educational levels, low income, and those who are unemployed. Thirty-two percent of men below the poverty level were smokers compared with 22% of men at or above poverty level (Cigarette Smoking Among Adults, 2007; Centers for Disease Control and Prevention, 2010).

Statistically significant association is found between age of dependence and the severity ($p<0.05$) and both these variables are negatively correlated ($R=-0.3$) i.e., earlier is the age of dependence greater is the severity of dependence. Similar observation was made by Naomi Breslaua Tb et al in their study according to which the lifetime prevalence of nicotine dependence was the highest in those who initiated smoking at 14 – 16 years of age, and the lowest in persons who delayed first use until age 17 or above. Smoking initiation before age 14 was associated with the longest time to daily smoking (Naomi Breslaua, 1993). Smokers usually are unsuccessful in quitting and the chronicity itself is a potential reinforce. Researchers have identified that sensory aspects of nicotine and its metabolites along with environmental stimuli have a significant role in maintaining smoking behavior.

Summary and Conclusion

The following conclusions may be derived on the basis of the observations of the present study as summarized in the previous section.

- The age group of 40 yrs to 50 yrs, illiterates are found to have high severity of smoking. males among which 81.81% were found to have high level of nicotine dependence.
- High nicotine dependence more prominent among two groups, those having very low income i.e., <5,000 per month and those earning >20,000 per month which is statistically significant.
- Nicotine dependence between 10-20 years of age had predominantly high level of dependence (84.61%) than those who became dependent at the later age.
- Statistically significant association is found between age of dependence and the severity ($p<0.05$) and both these variables are negatively correlated ($R=-0.3$) i.e., earlier is the age of dependence greater is the severity of dependence.
- On comparing the duration of nicotine dependence with the severity, it is found that there is a weak positive correlation (0.024) between them which implies the fact that greater severity of dependence is found in chronic smokers.

Limitations

- The time bound nature of the study dictated a small sample size.
- Restricted nature of sample means that the findings are not readily applicable to other population.
- Assessment was cross-sectional and non-blind.
- On direct enquiry, there could be chances of wrong information.

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