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A Study on Health Profile of First Year Medical Students in A Medical College of North Andhra Pradesh

Kailash Rao Koneti[1], SatyanarayanaRaju M[2], RaviKiran E[3], Ramasankaram K[4]
[1]*Assistant Professor ,Department of Community Medicine, GayatriVidyaParishad Institute of Health Care & Medical Technology(GVP IHC&MT),Visakhapatnam ,*
[2]*Assistant Professor, Department of Community Medicine, GVP IHC&MT,*
[3]*Professor ,Department of Community Medicine, GVP IHC&MT ,* [4]*Professor & HOD, Department of Community Medicine, GVP IHC&MT*

Abstract:
Background*: Well motivated health professionals can be good role models for the communities. Detection of predisposing factors of diseases like hypertension, Diabetes, obesity, anemia etc. is vital in modification of life style diseases particularly in teenagers. Prevalence studies of risk factors of non-communicable diseases and other predisposing factors of ill health in medical students are very few. So the main aim of this study is to know the prevailing risk factorsandto educate the students about Preventive measures.*
Methodology*: A cross sectional study was conducted on 149 first year medical students at Gayatri Vidya Parishad Institute of Health Care and Medical Technology, Visakhapatnam, India. A predesigned and pretested schedule was prepared for collecting data which includes basic information of the students, risk factors of non-communicable diseases like high blood pressure, high sugar levels and obesity followed by anthropometric measurements height, weight ,Waist–Hip Ratio and investigations like blood groups, Haemoglobin (Hb)% and Random blood sugar(RBS) tests using standard WHO criteria .*
Results: *8.7% students were obese and 22.1% were overweight. 40 % of students were prehypertensives and only 2.7% were hypertensives. 24.2% showed above normal Waist Hip Ratio (WHR). Overall percentage of anemia was 28.19%.*
Conclusion: *The findings of this study forms the base line information on some of the prevailing non-communicable diseases for keeping a track of them in students in the years to come. The first year medical students are future health care professionals. Therefore it is essential to give health education and inculcate preventive and control measures among them. High prevalence of overweight /obesity and anaemia is an alarming feature which need to be emphasized to change life styles of medical students.*
Keywords: *Non-communicable diseases, Risk factors, under graduate medical students*

I. Introduction

India has been experiencing a dramatic rise of Non-Communicable Diseases (NCDs), due to higher inherent susceptibility and rapidly changing life style patterns.[1,2] The NCDs impede the socio-economic development and a serious threat to public health. They are estimated to account for about 60% of all deaths and India contributes more than two thirds of total deaths due to NCDs in South East Asia Region (SEAR) of WHO. [3] Increasing urbanization, industrialization and globalization are leading to epidemic of NCDs. As result of multidimensional effect at individual level, health system and macroeconomic levels, NCDs are being labeled as a global 'Chronic Emergency'. The major risk factors associated with NCDs can be seen in young adults in the form of life style and behavioral changes.[5] If the risk factors are detected and proper awareness is created among new entrants of medical profession, they in turn become role models and serve other communities in a better way. On the face of the above background a study was carried out amongst the first batch of medical students of GayatriVidyaParishad Medical college(2016 Batch), to create base line data that can be tracked year after year with the following objectives.

1) To know the prevailing risk factors like obesity, hypertension, diabetes mellitus etc.
2) To educate students about preventive measures against the risk factors detected.

Ethical Consideration: The permission for conducting the study was obtained from the Institutional Ethical Committee. Informed consent was taken from the students. Confidentiality was strictly ensured. The subjects with abnormal findings were imparted with relevant knowledge and those who needed curative treatment were referred to physician for further advice and follow up.

II. Methodology

A cross sectional study was conducted on 149 first year medical students at Gayatri Institute of Health Care and Medical Technology, Visakhapatnam, in the month of December 2016. The data was collected on predesigned and pretested schedule which includes basic information of the students, family history of hypertension, diabetes mellitus, obesity and presence of risk factors of certain non-communicable diseases like high blood pressure, high sugar levels and obesity. Habits related to NCDs were recorded. Anthropometric measurements like height, weight, Body Mass Index (BMI), and Waist Hip Ratio (WHP) were recorded as per WHO guidelines.[6] The medical students were also subjected to certain tests like- ABO blood groups ,Random blood Sugar(RBS) and Haemoglobin percentage(Hb%) which were determined by an auto-analyzer. Waist Hip Ratio (WHR) was suggested as an additional measure of body fat distribution. It is an index of both subcutaneous and intra-abdominal adipose tissue. Abdominal obesity is associated with an increased risk of myocardial infarction,stroke and sudden death. WHR appears to be a stronger independent risk factor than BMI.

Statistical Analysis: The data were collected and analyzed on SPSS software version19. Results were expressed in percentages. Chi-square test was applied to find the association. P<0.005 was considered as statistically significant.

III. Results

The range of age of the first year medical students was 17 to 21 years. Mean age of students was 18.29 ±0.89years. Ratio of Girls to boys was 1.8:1. The positive family history of hypertension, diabetes mellitus and obesity were in the order of 45%, 48.3% and 9.4% respectively. None of the students had the habit of smoking, alcohol or drug abuse. 21.5% were regular vegetarians. 40.3% students did regular physical exercises and 12.8% also practiced yoga. Among the ABO blood groups the commonest blood group in this study was "O"group (44.97%) and the least common was "AB" blood group i.e. 6.64%. All students were maintaining normal glycaemic levels as evident from venous random blood sugar levels. 67.1% of the students had some kind of refractive error. 10% of study subjects were suffering from dental caries and 6.7% were asthmatics.

Table.1a. Distribution of Students According to BMI, Waist Circumference and WHR (n=149)

BMI (wt /Ht^2)	**No.**	**Percentage**
< 18.5	29	19.5
≥ 18.5 - < 24.9	72	48.3
≥ 25 - < 29.9	33	22.1
≥ 30 - < 34.9	13	8.7
≥35 - <39.9	01	0.7
≥ 40	01	0.7
Total	149	100.0
Waist Circumference (cms)	**No.**	**Percentage**
Normal	139	93.3
Above Normal	10	6.7

(Weight in Kgs and Height in meters)

Table.1a. It was observed that 22.1% of students with BMI ≥ 25 were overweight and 8.7% were obese with BMI ≥ 30. Waist circumference of ≥ 102 cmsinmales and ≥ 88 cmsin females were taken as abnormal.

Table.1b. Distribution of Students as per WHR by Gender (n=149)

	WHR by Gender					**Total**	
Male	**No.**	**%**	**Female**	**No.**	**%**	**No.**	**%**
< 0.90	48	92.3	<0.85	65	67.0	113	75.8
≥ 0.90	4	7.7	≥ 0.85	32	33.0	36	24.2
Total	52	100.0		97	100.0	149	100.0
Chi-square value = 11.82; df=1; p =0.001							

Table.1b. 24.2% (36/149) showed abnormal WHR.There is a significant difference in abnormal WHR between male and female students.In this study it was observed that female students were significantly associated with obesity compared to males.

Table.2. Distribution of Students basing on SBP &DBP level (n=149)
(SBP-Systolic blood pressure. DBP-Diastolic blood pressure.)

SBP (mm. Hg)	**No.**	**Percent**
< 120	85	57.0
≥ 120-139	60	40.3
≥140-159	4	2.7
≥ 160	0	0.0
Total	149	100.0
DBP (mm. Hg)	**No**	**Percent**
< 80	88	59.1
≥ 80-90	61	40.9
≥ 90-99	0	0.0
≥100	0	0.0
Total	149	100.0

Table.2. Indicates that 40.9% of Students were prehypertensives and 2.7% were hypertensives , when JNC 8 (Joint NationalCommitteereport) recommendations were considered.

Table. 3. Association between Hemoglobin (Hb%) and Gender

Hb (gm %) by Gender						**Total**	
Male	**No**	**%**	**Female**	**No**	**%**	**Count**	**%**
< 13 **gm %**	4	**9.62**	<12 **gm %**	38	39.18	42	28.19
≥ 13 **gm %**	48	90.38	≥ 12 **gm %**	59	60.82	107	71.81
Total	52	100.0		97	100.0	149	100.0
Chi-square value = 14.41; df=1; p < 0.01							

The overall percentage of anaemia was 28.19. There was a significant difference between haemoglobin (Hb%) levels in males and female students as seen in Table 3. 39.18 % of female students with Hb less than 12 gms % were anaemic and 9.62% male students with Hb less than 13 gms % were anaemic according to cut off points recommended by WHO.

IV. Scussion

The cross sectional study on first batch of 149 medical students revealed certain findings, some of which will be discussed here. The commonest blood group in this study is "O" group (44.97%)which was in conformity with the commonest blood group in India.[7]A similar prevalence study on ABO blood groups at SKN Medical college and Govt. Hospital (Pune) also claimed "O" group (33.73%) as the commonest among medical students. Obesity is emerging as a serious problem in all age groups including teenagers. As per WHO classification of Body Mass Index(BMI), [9]22.1%over weight and 8.7% Obesity were observed in our study. Jayaraj et al, recorded 44% over weight and 10% obesity in medical students.[10] As far as obesity is concerned medical students are at a high risk side because of stressful education and reduced physical exercise due to long study hours. It is perhaps most prevalent form of malnutrition and the most significant risk factor of ill health.
The prevalence of hypertension in our study was only 2.7% which was much less than the overall prevalence of hypertension of 14.5%, in a study byDalal AP and Bala D.[11]Chattopadhaya et al found 13.88% of hypertensives and 19.18% prehypertensives among medical students.[12] Since the subjects in the present study had 45% of positive family history for hypertension and 48.3% diabetes mellitus they must adopt healthy life styles to prevent development of hypertension and diabetes mellitus. Bano R et al estimated 32% prevalence of anaemia among medical students i.e. 20% of boys and 44%girls.[13]Where as in the present study it was observed that 28.85% of students were anaemic i.e. 9.6 % of boys and 39.18% girls.

V. Conclusion

The Study of health profile of first batch of medical students was conducted to detect certain risk factors of non-communicable diseases .The overall prevalence of obesity as per BMI and increased WHR found to be 8.7% and 24.2% respectively. The importance of Physical activity and proper nutritious diet were emphasized. 2.7% subjects were hypertensives. Since the study subjects had positive family history of hypertension, tracking of blood pressure should be initiated to take necessary preventive measures. 28.19% of subjects were anaemic.The students were given Health education concerning obesity, hypertension and diabetes mellitus and wereadvocated the importance of adopting healthy life styles as a primordial preventive measure.

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