Comparative study of risk factors associated with hypertension among urban and rural communities at Rahim Yar Khan

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Abstract

Background: Hypertension is a silent killer disease. Various risk of hypertension results in morbidity, mortality and huge economic burden.

Objective: To compare the risk factors associated with hypertension in urban and rural communities and treatment used.

Methodology: This was a community based cross sectional study in which 150 hypertensive people residing in urban and rural communities of District Rahim Yar Khan were interviewed. Data was collected through questionnaire using simple random sampling by lottery method to select one urban and one rural union council separately during 2015. In both selected communities firsthouse was selected by simple random sampling then convenient sampling method was applied to select hypertensive in communities. Data was collected on risk factors of hypertension. Then collected data was entered into computer using Epi Info 3.1.

Results: Amongst 75 respondents of urban community, 28 (37.3%) were 41-50 years old while among 75 respondents of rural community, 27 (36 %) respondents were 31-40 years old, 53 (70.7%) urban participants were females and 46 (61.3%) rural respondents were females. In urban community 43 (57.3 %) respondents were found illiterate and 24 (32.0%) rural participants were also found illiterate. In this study 15 (93.8%) respondents had diabetes mellitus as associated disease in urban community and 20 (100%) had diabetes mellitus as associated disease in rural community. Also 63 (84 %) urban respondents were using Ca^{++} channel blockers and 75 (100 %) rural respondents were using ACE inhibitors. And 66 (88%) urban respondents believed that stress, anxiety is a risk factor of hypertension and 70 (93.3%) rural participants believed that stress/anxiety is a risk factor of hypertension.

Conclusion: This study showed that more urban young people have hypertension than rural young people, and it was more common in rural male, in persons living in extended family. Most of the hypertensive persons in rural area were using angiotensin converting enzyme inhibitor and calcium channel blocker was used mostly by urban hypertensive.

Key words: Hypertension, Rural, Urban, Risk factors.

Introduction

Hypertension is defined as disorder, in which the blood pressure is persistently raised. Formerly mentioned as non-arterial hypertension.[1] Presently, it basically denotes arterial hypertension.[2] Individual is considered as hypertensive, when one's blood pressure is repeatedly140/90mmHg or more than,140/90 mmHg. Persistently raised blood pressure decreased the life expectancy, if left untreated.[3]

Hypertension is considered among the most prevalent ailment of present era, affecting the human beings throughout the earth.[4] It has been assessed that until 2025,1.56 billion peoples will have this disease.[5] According to the National Health Survey of Pakistan it has been informed that eighteen percent of grown person (more than 45years of age) are hypertensive.[6]

Hypertension because of its wide spread throughout the world, and its related impact on health of people is considered as huge task for health providers.[7] It has been evaluated that raised blood pressure has co-relation with different diseases such as cardiac diseases, brain stroke and renal failure. Risk of hypertension is more in those who are obese, fat lover, alcoholic and heavy smokers. Normal BMI and increased physical activities may not contribute to increase the risk of hypertension.[8] Research work done revealed that occurrence of hypertension amongst grown up subjects in industrialized nations is 25% and in unindustrialized states is 10-20%.[9] This prevalence has been reported to be 21-37% in adult population and 65% for elderly; 17% in Sri Lanka and 17.9% for Pakistan.[3] Various studies done revealed that disease burden is gradually increasing, as it has been expected that until 2025, 1.56 billion

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people will be hypertensive.[10]
Communal analyses have acknowledged that disease burden is raised 30 times in city occupiers and 10 times amongst the rural area.[11] According to the National Health Survey of Pakistan twenty three percent of city dwellers and eighteen percent of rural adult population is hypertensive.[12] Various risk factors play a role in development of hypertension namely age, smoking, extra salt intake, consumption of alcohol, increase BMI, diabetes mellitus and history of hypertension in parents and family.[13]
Hypertension is a chief communal health issue in Pakistan. So the current study was designed to equate the threat associated with high blood pressure amongst city and rural areas of District Rahim Yar Khan. The study could help the policymakers to have a baseline data for planning to prevent hypertension and also public health personnel to make further studies and research and give awareness of reasons of high blood pressure to metropolitan and rural populations according to their requirements and circumstances.
This study was conducted to compare the risk factors associated with hypertension in urban and rural communities and management option used by hypertensive patients.

Methodology

Study design: Community based cross sectional study. Place of study: The place of study was one urban union council (U.C 38i) and one rural union council (U.C 228) of Rahim Yar Khan District. RYK has an area of 11,880 km^2 and encompasses following four Tehsils (Khanpur, Laiquatpur, RahimYar Khan and Sadiqabad) which contain a total of 122 union councils. The entire population of Rahim Yar khan district was 3,141,053 of which 601825(19.16%) was urban and 2539228 (80.884%) was rural, as mentioned by census done in 1998.[14]
Study Population: Hypertensive people residing in urban and rural communities of district Rahim Yar Khan were study population.
Sample size: The sample size of the study was 150 hypertensive people (75 respondents from urban community and 75 respondents from rural community were taken).
Sampling Technique: Multistage sampling technique was done. First Stage**:** Simple random sampling by lottery method to select one urban and one rural union council separately. Second Stage**:** In communities selected first house was selected by simple random sampling in both communities then convenient sampling method was applied to select hypertensive in communities. The span of research work was one month.

Data Collection: A pretested questionnaire was used after data collection. The hypertensive people residing in urban and rural communities at Rahim Yar Khan were interviewed after taking consent, during 2015.

Data Analysis: The computer software EPi Info 3.1, was used to enter the collected data. Frequencies and percentages obtained from data was represented in tables and diagrams.

Ethical Consideration: Approval was obtained from concerned authority to conduct the research work. Verbal permission was taken from subjects.

Inclusion Criteria: 30 to 55 year age group people with essential hypertension were selected.

Exclusion Criteria: Case of secondary hypertension i.e chronic liver disease, chronic renal failure and hormonal problems were excluded.
Variables included were age, sex, marital status, ethnicity, socioeconomic status, family type, weight, BMI, eating habits, salt intake, smoking, exercise, family history and medicine intake.

Results

This cross sectional study was done on rural and urban hypertensive patients and risk factors were enlisted and treatment options used were noted. Table I shows risk factors of hypertension in rural and urban subjects. Most of the patients in this study were between 41-50 years.
Table II shows the family types, monthly income and drug used for treatment in rural and urban patients.

Table I: Frequency distribution of various variable of respondents

Variables	Urban		Rural	
Age	**Freq.**	**%age**	**Freq.**	**%age**
30 years or less	10	13.3	15	20.0
31-40years	18	24.0	27	36.0
41-50 years	28	37.3	25	33.3
More than 50	19	25.4	8	10.7
Total	75	100.0	75	100.0
Sex				
Male	22	29.3	29	38.7
Female	53	70.7	46	61.3
Total	75	100.0	75	100.0
Ethnicity				
Panjabi	41	54.7	51	68.0
Sindhi	1	1.3	2	2.7
Pathan	0	0.0	1	1.3
Saraiki	29	38.7	16	21.3
Urdu	4	5.3	5	6.7
Total	75	100.0	75	100.0
Educational Status				
Illiterate	43	57.3	24	32.0
Under Matric	16	21.4	37	49.3
Matric	7	9.3	11	14.7
Intermediate	1	1.3	2	2.7
Graduate	6	8.0	1	1.3
Post Graduate	2	2.7	0	0.0
Total	75	100.0	75	100.0
Occupation				
Gov. Servant	7	9.3	0	0.0
Businessman	6	8.0	10	13.3
Farmer	2	2.7	11	14.7
Laborer	8	10.7	6	8.0
House Wife	52	69.3	45	60.0
Jobless	0	0.0	3	4.0
Total	75	100.0	75	100.0

This study shows that 57 (76%) of urban and 38 (50%) of rural hypertensive has family history of hypertension. In this study, Table III shows the perception of rural and urban hypertensive patients regarding risk factors.

Table II: Frequency distribution of variable of respondents

Variables	Urban		Rural	
Family Type	**Freq.**	**%age**	**Freq.**	**%age**
Extended	40	53.3	58	77.3
Nuclear	35	46.7	17	22.7
Total	75	100.0	75	100.0
Family Monthly Income				
Less Than Rs.10000	21	28.0	1	1.3
Rs.10000-20000	38	50.7	58	77.3
More Than Rs.20000	16	21.3	16	21.4
Total	75	100.0	75	100.0
Blood Pressure				
140/90 mmHg	4	5.3	0	0.0
150/90-110 mmHg	42	565.0	35	46.7
160/100-110 mmHg	17	22.7	19	25.3
170/110-120 mmHg	4	5.3	12	16.0
180/120 & above	8	10.7	9	12.0
Total	75	100.0	75	100.0
Diagnosis of Disease				
Known case	160	80.0	36	48.0
Unknown case	15	20.0	39	52.0
Total	75	100.0	75	100.0
Associated Disease				
Diabetes Mellitus	15	93.8	20	100.0
COPD	1	6.2	0	0.0
Total	16	100.0	20	100.0
Use of drugs				
Diuretic	4	5.3	18	24.0
Beta blocker	2	2.7	1	1.3
Ca channel blockers	63	84.0	57	76.0
ACE inhibitors	58	77.3	75	100.0

Table III: Perception of patients about risk factor

Risk Factors Hypertension	Urban		Rural	
	Freq.	%age	Freq.	%age
Family history of HTN	**57**	**76.0**	**38**	**50.7**
BMI high	43	57.3	45	60.0
Salt intake in excess	27	36.0	39	52.0
Smoking	14	18.7	25	33.3
Exercise	1	1.3	0	0.0
Stress/anxiety	66	88.0	70	93.3
Fatty diet	12	16.0	1	1.3
Hypercholestremia	1	1.3	0	0.0

Discussion

The current research work was done to link the risk factors related with hypertension amongst city and rural groups of District Rahim yar Khan. To acquire appropriate outcomes total 150 people, 75 respondents from urban community and 75 respondents from rural community were included in the study. The comparison of risk factors between urban and rural communities are as follows. It was clear from study that out of 75 respondents of urban community10 (13.3%) were 30 years, 18 (24%) were 31-40 years and 28 (37%) were 41-51 years old as far as rural community was concerned out of 75 respondents 15 (20%) were 30 year 27 (36%) were 31-40 years old and 25 (33%) were 41-50 years old. The maximum respondents of high blood pressure in this study lies between 41-50 years and their percentage in urban and rural communities were 42 to 40%. Different studies globally showed that BP increases with increasing age of both gender. When the statistical test was applied between blood pressure and age, it was found significant and it was also reflected in this study.[8,9,10]

Study revealed that 57 (76%) respondents of urban community and 38 (50.7%) respondents of rural community had family history of hypertension genetics had proven role in chronic diseases[15] which was shown in the urban population as compared to rural population. There might be environmental factors which have affecting the genes. Education is one of the most important factors that help people to manage their health issues. Literate people can manage their diet and life style in a better way than illiterate and less educated persons. Study showed that 43 (57.3%) respondents of urban community and 24 (32%) of rural community were illiterate. While 7 (9.3%) respondents of urban and 11 (14.7%) respondents of rural community were matric. It is obvious that urban people have more access to educational institutions, but better results were seen among rural community as compared to urban community. This might be due to the fact community may not be a pure rural community or sample size could be too small.

During study it was found that majority 52 (69.3%) of urban as well as 44 (60%) of rural females respondents were housewives while remaining proportion of respondents of both communities were working as businessman, farmer and some of them were government servant or jobless. The urban hypertensive housewives were in majority than rural housewives. This difference could be due to life style and nature of work they perform, this was in contrast to the finding of the study, conducted by Aziz and coworkers (2005) who reported that 22.0% hypertensive women were housewives.[16] Study showed majority of both communities had family monthly income between 10000-20000 rupees because 38 (50.7%) urban respondents and 58 (77.3%) rural respondents were earning said amount while 21 (28.0%) urban and 1 (1.3%) respondents had monthly income less than 10,000 rupees. Similarly 16 (21.3%) respondents of both communities were earning more than 20,000 rupees per month. A similar study, carried out by kaur et al.(2007) in Ludhiana, India asserted that 44.0% respondents had monthly income less than 5000 rupees. When the statistical test was applied between blood pressure and income, it was found insignificant in both communities it means that income has no effect on blood pressure. [17] Significant role of exercise cannot be overlooked, it prevents population from chronic diseases like hypertension.[18] Present study revealed that respondents of both communities were not accustomed of exercise. Efforts should be made to create awareness about the importance of exercise among communities. Study also assessed the body mass index of the respondents. It was found that 43 (57%) respondents of urban community and 45 (60%) respondents of rural community had normal weight. There was minor difference between both communities but it was found that people of rural community have good health as compared to urban community because they work hard and their routine activities are mostly done manually. Similarly obesity was more among

urban masses and its percentage was 20 (26.7%) and in rural it was 13 (17.3%) but over weight was observed more among rural respondents 26 (34.7%) as compared to urban respondents 22 (29.3%).[19] This disparity was due to hectic life style and healthy dietary habits in rural and open atmosphere. According to the previous studies done, obesity is a known threat for high blood pressure.[19] When the statistical test was applied between blood pressure and BMI it was not significant in both communities. This insignificance of relation of blood pressure with BMI might be due to the small sample size in this study. It was found during study that 40 (53.33%) respondents of urban community and 58 (77.3%) respondents of rural community were living as extended family type while remaining proportion was living as nuclear families.

Conclusion

This study showed that more urban young people have hypertension than rural young people. And it was more common in rural male, in persons living in extended family. Most of the hypertensive persons in rural area were using angiotensin converting enzyme inhibitor and calcium channel blocker was used mostly by urban hypertensive. To reduce the risk of hypertension public health recommendation suggests to adapt the food which is rich in fresh fruits, vegetables, whole grain, legumes, nuts and seeds, along with use of dairy products that have less lipids contents. This diet contains less sodium and more potassium than typical diet. Basically this diet represents our rural dietary pattern which has been influenced and changed by urban pattern. Blood pressure management requires maintenance of healthy weight and active life style.

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