



ASSESSMENT OF THE IMPACT RELATED TO PREVENTION OF STROKE ASSOCIATED WITH HYPERTENSION BY IMPARTING HEALTH EDUCATION

Genetics

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ABSTRACT

Background and Objectives: Cardiovascular diseases caused 2.3 million deaths in India in the year 1990; this is projected to double by the year 2020. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India. Nurses are faced with a profound urgency to enhance public and professional education towards this end and to translate the results of research into improved practice. With this intention the present study attempts to assess the impact of health education related to prevention of stroke associated with hypertension among the inpatients of district hospital, Chitradurga.

Methods: Evaluative research approach and pre-experimental design was used. Non probability purposive sampling technique was used to select the sample that is 50 adults at government hospital Chitradurga. The tool used is structured knowledge questionnaire.

Results: The Pre-test knowledge score obtained by the patients was 17.1 (58%) After administering health education post test mean knowledge score increased to 25.3 (84%) which evidenced that the developed health education was effective in increasing the knowledge of hypertensive patients. Hence the research hypothesis stated that there is significant difference between the pre- and post-test knowledge scores of hypertensive patients regarding stroke prevention was accepted.

Interpretation and Conclusion: The present study attempted to assess the effectiveness of health education on knowledge of hypertensive patients regarding stroke prevention found that the developed health education was effective in improving the knowledge of hypertensive patients regarding stroke prevention associated with hypertension.

KEYWORDS

Stroke Prevention, Hypertensive Patients, Knowledge.

INTRODUCTION

Stroke is a frequent medical problem occurring in patients with hypertension and other risk factors. Hypertension is an important risk factor for cardiovascular and renal diseases including stroke, coronary heart diseases, heart failure and kidney failure. "Hypertension (HTN)" or "high blood pressure" is a disease of vascular regulation in which mechanism that control arterial pressure within the normal range are altered. It is classified as either primary (essential) or secondary. The greater prevalence of stroke in men is well known, but recent issues emphasize the importance of stroke in women. In the United States, it is estimated that 1 in 6 women will die of stroke, whereas 1 in 25 will eventually die of breast carcinoma and over the entire lifetime, ~16% of women but only 8% of men will die of stroke. Stroke is defined as an abrupt onset of a neurological deficit that is attributable to a focal vascular cause. It is manifested either, as brain infarction or haemorrhage. More than any other organ brain depends on adequate oxygenated blood supply.²

About 90–95% of cases are termed "primary hypertension", which refers to high blood pressure for which no medical cause can be found. In the remaining 5–10% of cases Secondary hypertension is caused by other conditions that affect the kidneys, arteries, heart, or endocrine system. Individuals older than 50 years are classified as having hypertension if their blood pressure is consistently at least 140 mmHg systolic and 90 mmHg diastolic. Arterial blood pressure is measured with sphygmomanometer and is expressed with systolic blood pressure above the diastolic pressure. Normal range is 120/80 mm Hg⁴

It is estimated that nearly one billion people or 26% of the adult population have hypertension worldwide. It was common in both developed (333 million) and undeveloped (639 million) countries. India will soon face an enormous socio-economic burden on the costs of the rehabilitation of stroke-survivors because the population is now surviving through peak years (age 55-65) of occurrence of stroke (CVD). The Global Burden of Disease (GBD) Study (1997) reported 9.4 million deaths in India, of which 619, 000 were from 'Stroke,' and the Disability Adjusted Life Years (DALYs) that were lost, almost amounted to 28.5 million: nearly six times higher than that due to Malaria. In 2005, stroke deaths accounted for 87% of all deaths from developing countries and this burden will increase with

ageing population. An estimated 5.7 million people died from stroke in 2005 and projected deaths will rise to 6.5 million by 2015.³

The prevalence of hypertension in the United States is increasing and reached 29% in men (though menopause tends to decrease this difference) and those of low socioeconomic status.⁵

Cardiovascular diseases caused 2.3 million deaths in India in the year 1990; this is projected to double by the year 2020. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India. Indian urban population studies in the mid-1950s used older WHO guidelines for diagnosis (BP 160 and/or 95 mmHg) and reported hypertension prevalence of 1.2–4.0%. Subsequent studies report steadily increasing prevalence from 5% in 1960s to 12–15% in 1990s. Hypertension prevalence is lower in the rural Indian population, although there has been a steady increase over the time here as well. Recent studies using revised criteria (BP 140 and/or 90 mmHg) have shown a high prevalence of hypertension among urban adults: men 30%, women 33% in Jaipur (1995), men 44%, women 45% in Mumbai (1999), men 31%, women 36% in Thiruvananthapuram (2000), 14% in Chennai (2001), and men 36%, women 37% in Jaipur (2002). Among the rural populations, hypertension prevalence is men 24%, women 17% in Rajasthan (1994). Hypertension diagnosed by multiple examinations has been reported in 27% male and 28% female executives in Mumbai (2000) and 4.5% rural subjects in Haryana (1999).⁶

Pooling of epidemiological studies shows that hypertension is present in 25% urban and 10% rural subjects in India. At an underestimate, there are 31.5 million hypertensives in rural and 34 million in urban populations. A total of 70% of these would be Stage I hypertension (systolic BP 140–159 and/or diastolic BP 90–99 mmHg). Recent reports show that borderline hypertension (systolic BP 130–139 and/or diastolic BP 85–89 mmHg) and Stage I hypertension carry a significant cardiovascular risk and there is a need to reduce this blood pressure. Population-based cost-effective hypertension control strategies should be developed.⁷

There is a strong correlation between changing lifestyle factors and increase in hypertension in India. The nature of genetic contribution

and gene-environment interaction in accelerating the hypertension epidemic in India needs more studies. From above statistics it indicates that paralysis associated with hypertension is burning issue need to bring awareness among hypertensive patients. The investigator has found many hypertensive patients gradually develop CNS associated problems like stroke.

Hence investigator felt there is a need to increase the level of knowledge of inpatient admitted at District Hospital Chitradurga through health education by using lesson plan with attractive audio visual aids. So that this study will be able to enhance knowledge and in turn the incidence of the stroke among hypertensive patients can be reduced.

METHODOLOGY

Sample size of the present study consists of 50 hypertensive patients who are admitted in the District Hospital of Chitradurga. Purposive sampling technique was adopted to select the samples for the present study. Study group subjects included in patients suffering with hypertension and Inpatients not suffering with hypertension associated with CNS problem. The patients who are willing to participate in study were enrolled after taking their consent. Those patients who were already suffering with hypertension associated with CNS complications such as paralysis were excluded from the study.

The research design used for this study was pre- experimental (single group pre test and post test). The independent variable was health education and dependent variable the knowledge of hypertensive patients regarding stroke prevention. The study was carried out at Govt. General Hospital Chitradurga, Karnataka state. Fifty patients were selected using purposive sampling technique. A structured questionnaire was used to collect the data. The tool was highly reliable as was found out to be r =0.92. After the pre test each participant was given health education on stroke prevention. Post test was conducted. The obtained data were analyzed and interpreted using standard statistical software like SPSS version ¹⁶.

Structured knowledge questionnaire consisted of 32 items on stroke prevention associated with hypertension. The items were 5 aspects on concept and meaning, 3 items on risk and predisposing factors, 3 items on clinical manifestation, 8 items on complications 13 items on preventive strategy of hypertension resulting in stroke.

METHOD OF DATA COLLECTION

The formal permission was obtained from the Nursing superintendent of District hospital of Chitradurga district to conduct the main study from (17-11-11 to 17-12-11) among 50 subjects are selected by purposive sampling technique. The investigator given self introduction explained the purpose of the study, subject's willingness to participate in the study was ascertained. The subjects are assured anonymity and confidentiality of the information provided by them and written informed consent was obtained. The pre-test was conducted on 17-11-11 to 27-11-11 by administering the Structured Knowledge Questionnaire followed by health education in sessions on stroke prevention among hypertensive patients. On the 7th day post test was conducted by using the same tool. Each subject took 15 minutes to complete the knowledge questionnaire.

PILOT STUDY

After obtaining formal permission from the Nursing superintendent of District Hospital, Chitradurga, pilot study was conducted from 10-11-11 to 16-11-11 among 5 subjects selected by purposive sampling technique. The investigator given self introduction explained the purpose of the study, subject's willingness to participate in the study was ascertained. The subjects are assured anonymity and confidentiality of the information provided by them and written informed consent was obtained. The pre-test was conducted on 10-11-11 by administering the Structured Knowledge Questionnaire

followed by health education in two sessions (10-11-11 and 11-11-11) on stroke prevention in hypertensive patients. On the 6thday (17-11-11) post test was conducted by using the same tool. The Pilot study findings revealed that the overall post-test mean knowledge score (21.5) was higher than the overall pre-test mean knowledge score (11.2).

Results

The present study aims to assess the knowledge regarding stroke prevention before and after a health education among 50 hypertensive patients. Majority 56% (28 of 50) were in the age group of <50 years and 44% were of age >50 years 52% (26 out of 50) were males as compared to 48% females (24 out of 50) . 70% of respondents in the study group (35out of 50) came from joint family back ground .The study group consisted of 84 % married subjects (42 out of 50). The educational status of respondents plays a major roll. In the present study 76% (38 out of 50) had attained qualification up to primary and least 24%(12 out of 50) had passed upper primary. 74% of patients were residing in rural areas while as 26 % were from urban areas. 62% percent were in agriculture sector (31 out of 50) and 38%(19 out of 50) were government sector. The percentage distribution of Hypertensive Patients as per family income/month shows that majority (62%) were in the income of 10,000 and above. The respondents were asked about their diet pattern, it was found that most of the respondents (58%) were non vegetarians whereas (42%) vegetarians. The distribution of patients as per the duration of illness showed that 100 % of patients were suffering from the disease for more than 3 year table ¹.

Table 1: Frequency and percentage distribution of hypertensive patients according to their background variables

Variables	Opts	Frequency	Percentage
Age of the Client	<50	28	56
	>50	22	44
Gender	Male	26	52
	Female	24	48
Marital Status	Married	42	84
	Unmarried	8	16
Educational Status	Primary	38	76
	Upper primary	12	24
Place of Residence	Urban	13	26
	Rural	37	74
Occupation	Agriculture	19	38
	Non Agriculture	31	62
Family Income	<10000/-	19	38
	>10001/	31	62
Type of Family	Nuclear	15	30
	Joint	35	70
Dietary Habit.	Vegetarian	21	42
	Non vegetarian	29	58
Duration of Illness	<1yr	0	0
	>1yr	50	100

In table 2 association of Pre and posttest Knowledge scores shows a comparison among two groups with socio-demographic variables. Pretest and posttest Knowledge scores showed a significant association in the educational status of the patients (p<0.05). In gender group also the statistical significance was achieved in both pre and post test knowledge scores(p>0.05). In age group pre test score was insignificant but the same group achieved significant association after counseling in the posttest knowledge score (p=0.450 vs 0.039). Same pattern of difference in pre and post test knowledge score was achieved to significant proportions in marital status (p=0.328 vs 0.01) and in the occupational group when observed in agricultural and non-agricultural trades whereby we noticed a significant change in both scores (p=0.2 vs 0.01). Rest of the demographic variables did not achieve the level of significance when compared among two groups.

Table 2: Association of pre test knowledge scores regarding stroke prevention with selected demographic variables.

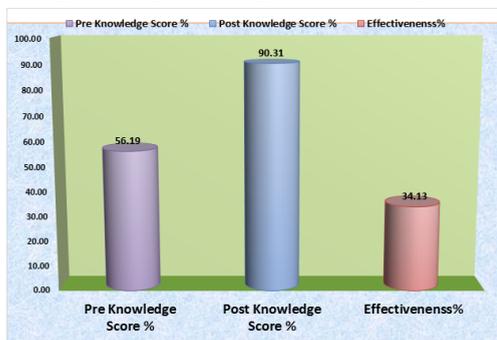
Association of Pre test Knowledge scores of with selected socio-demographic variables.									
Variables	Opts	Low	Average	Good	Chi Test	P Value	df	Table Value	Result
Age of the Client	<50	3	25		0.5707	0.450	1	3.841	Not Significant
	>50	4	18						
Gender	Male	0	26		8.8075	0.003	1	3.841	Significant
	Female	7	17						

Marital Status	Married	5	37		0.9568	0.328	1	3.841	Not Significant
	Unmarried	2	6						
Educational Status	Primary	2	36		9.5495	0.002	1	3.841	Significant
	Upper primary	5	7						
Place of Residence	Urban	1	12		0.5808	0.446	1	3.841	Not Significant
	Rural	6	31						
Occupation	Agriculture	4	15		1.2634	0.261	1	3.841	Not Significant
	Non Agriculture	3	28						
Family Income	<10000/-	3	16		0.0817	0.775	1	3.841	Not Significant
	>10001/	4	27						
Type of Family	Nuclear	3	12		0.642	0.423	1	3.841	Not Significant
	Joint	4	31						
Dietary Habit.	Vegetarian	2	19		0.6015	0.438	1	3.841	Not Significant
	Non vegetarian	5	24						
Duration of Illness	<1yr	0	0		NA				

Table 3: Association of post test knowledge scores regarding stroke prevention with selected demographic variables

Association of Post test Knowledge scores of with selected socio-demographic variables.									
Variables	Opts	Low	Average	Good	Chi Test	P Value	df	Table Value	Result
Age of the Client	<50		1	27	4.2609	0.039	1	3.841	Significant
	>50		5	17					
Gender	Male		0	26	7.273	0.007	1	3.841	Significant
	Female		6	18					
Marital Status	Married		3	39	5.9165	0.015	1	3.841	Significant
	Unmarried		3	5					
Educational Status	Primary		0	38	21.591	0.000	1	3.841	Significant
	Upper primary		6	6					
Place of Residence	Urban		1	12	0.3095	0.578	1	3.841	Not Significant
	Rural		5	32					
Occupation	Agriculture		5	14	5.9165	0.015	1	3.841	Significant
	Non Agriculture		1	30					
Family Income	<10000/-		3	16	0.4159	0.519	1	3.841	Not Significant
	>10001/		3	28					
Type of Family	Nuclear		2	13	0.0363	0.849	1	3.841	Not Significant
	Joint		4	31					
Dietary Habit.	Vegetarian		3	18	0.1793	0.672	1	3.841	Not Significant
	Non vegetarian		3	26					
Duration of Illness	<1yr		0	0	NA				

Fig 1: Comparison of pre test and post test knowledge scores.



The data in the table 3 shows overall scores of knowledge. The data in the table indicates that the mean post-test score was significantly higher than mean pre-test score. The mean pre-test score was 17.3 (54%) which increased to 25.3 (84%) in the post-test showing an average increase 8.2 (30%). The calculated 't' value (26.51) was greater than table value at 0.05 level of significance. Hence null hypothesis was rejected and research hypothesis was accepted. The mean difference between pre-test and post-test score was a true difference and not a chance difference. This indicates that the health education was effective in increasing knowledge on stroke prevention.

The data in the table 4 shows the section wise pre-test and post-test knowledge scores of subjects. In Concept and meaning the mean percentage of 58% in the pretest was increased to 80% in the post test. In Risk and predisposing factors section the mean percentage of 66.7% in pretest was increased to 82% in the post-test. In Clinical manifestation section the mean percentage of 66.7% in the pretest was increased to 90% in the post test. In complications section the mean

percentage of 65% in pretest was increased to 85% in the post-test. In prevention of hypertension associated with paralysis (stroke) section mean percentage of 64.5% in pretest was increased to 88.2% in the post-test.

In order to test the null hypothesis that there is no significant difference between the pre and post test knowledge about stroke prevention, 't' test for difference of means was carried out at 0.05 level of significance. In all the five areas of knowledge the mean score for post test was significantly higher. (p value < 0.05). Hence null hypothesis was rejected. The overall mean pre-test score was 17.3 which increased to 25.3 in the post-test showing an average increase 8.2. The mean difference between pre-test and post-test score was a true difference and not a chance difference [Table 4]. The fig 1 depicts the impact of change in the knowledge score at pre knowledge and post knowledge when counseling was imparted. There was a significant increase in the knowledge score from 51.6% to 91.31% depicting effectiveness of imparting counseling. This indicates that the health education was effective in increasing knowledge on stroke prevention

DISCUSSION

Stroke is defined as rapidly developing symptoms and/or signs of focal and at times global loss of cerebral function lasting for 24 hrs or more with no apparent cause other than that of vascular origin. According to a consensus statement on stroke 'Every five minutes someone in United Kingdom has a stroke. It is the cause of one in eight deaths and constitutes a formidable burden of disability and misery for the patients and their relatives and the wider community. Stroke makes a considerable contribution to morbidity and mortality and is one of the top four causes of death worldwide. Increasing hypertension in India and other developing countries has been related to sedentary lifestyle, excess dietary salt, calorie and alcohol intake, increasing generalized and central obesity, and stress of migration and urbanization. Patients' knowledge about HTN and benefits of lifestyle modifications

seems to be the key to successful control of HTN. However, lifestyle changes are not easily achieved. Adherence to treatment increases when the patients are active. Therefore, well-designed educational interventions with active participation of the patients are necessary for increasing HTN knowledge, self-monitoring, and control.^{11,12}

The incidence and mortality of stroke vary greatly among different populations and has declined considerably in several foreign studies. This is probably the result of better preventive measures. Common risk factors of stroke are hypertension, diabetes mellitus, coronary artery disease, atrial fibrillation, physical inactivity and alcohol. Among these a number of risk factors are modifiable and treatable⁹

In this study we investigated presence of hypertension as risk factor in stroke patients. The aim of this study was to assess the knowledge regarding stroke prevention in selected problems before and after a health education among Hypertensive patients. In this study majority 56% (28 of 50) were in the age group of <50 years and 44% were of age >50 years. These findings are consistent with other recent hospital-based studies such as Pandian, Kalra, Jaisonet et al. (2006) and Pandian, Jaison, Sukhbinder et al. (2005), both in India, a developing country, where the age of most participants was less than 45 years. Studies have revealed that the average age for individuals who suffer a stroke is also younger in developing countries when compared to the case developed countries. In studies done in the developed countries, the majority of the participants were aged higher than 65 years (Hollander, Koudstaal, Bots et al., 2003 in Rotterdam, Netherlands; and Bonita, Solomon, & Broad, 1997 in Auckland, New Zealand). In these studies, advanced age was a strong predictor of stroke¹³.

In the present study 76% (38 out of 50) had attained qualification up to primary and least 24% (12 out of 50) had passed upper primary. The level of education for the majority of the participants in the present study was low. Out of the total participants, 40.6% had only attained primary level education, followed by those who had never attended school (23%). This is in contrary to the findings of similar studies in other areas such as Pandian, Jaison, Sukhbinder et al. (2005) in India, Yoon, Heller, Levi et al. (2001b) in Australia and Samsa, Cohen, Goldstein et al. (1997) in United States. Authors of these studies reported that majority of participants in their respective studies had secondary and college level of education¹³.

The findings of this study revealed that the overall pre test knowledge of subjects was 56% which showed that the participants scored low in the overall level of knowledge of stroke indicate that there is lack of knowledge among the participants about stroke warning. There were also similar findings in developed countries about knowledge of stroke among the public (Pancioli, Broderick, Kothari et al., 1998 in the United States and Yoon, Heller, Levi et al., 2001b in Australia).¹⁴ The findings were also consistent with other recent population based studies in developing countries (Pandian, Kalra, Jaison et al., 2006 and Pandian, Jaison, Sukhbinder et al., 2005, both done in India).¹⁵ In these studies the overall knowledge of stroke among the participants was reported to be low.¹³ There was a considerable improvement in the overall knowledge for the same subjects when counseling was imparted. There was significant increase in knowledge regarding stroke prevention after the health education among Hypertensive patients. $t = -27.097$ ($P = 0.000$).

The mean post-test knowledge score 91% was found to be significantly higher than mean pre-test knowledge score 56% at 0.05 level of significance ($t = 26.51 = 1.96$, $p < 0.05$). The present study, the mean percentage post test compliance (28.90) and mean percentage of pre test compliance is (17.98), suggesting the effectiveness of Health Teaching Programme which is supported by SurinderKaur et al (2013).¹⁶

Generally in the present study education was highly related to the knowledge of stroke. The findings disclose that male participants were more knowledgeable than females both in pretest and significantly increased in post test.

Objective: 3. Determine the association between demographic variables and pre test knowledge score.

The obtained χ^2 value according to the background variables such as age (2.13), gender (4.03), marital status (4.08), religion (2.34), educational status (2.83), and place of residence (3.12), occupation

(4.10), and family income (1.67), type of family (1.56) dietary habit (1.69) and duration of illness (2.87) shows that the findings of the study revealed that there was no association of pre-test knowledge score with selected demographic variables.

This section evaluated the findings of the present study in the light of previous research studies. The discussion is organized based on finding of the study.

Findings on knowledge of hypertensive patients regarding stroke prevention.

The post test mean knowledge score 84% was higher than the pre-test mean knowledge score 58%.

There was significant increase on the knowledge regarding stroke prevention after the Structured Teaching Programme among hypertensive patients. $t = -27.097$ ($P = 0.001$)

The above findings were supported by the earlier studies done by SurinderKaur et al (2013).¹⁶ where there was significant improvement in the knowledge on stroke prevention after intervention.

SUMMARY

This chapter has dealt with discussion based on the objective findings were presented. Samples characteristics were discussed in the beginning section followed by findings on knowledge of hypertensive patients regarding stroke prevention, and association between median differences in knowledge regarding stroke prevention and selected background factors along with the discussion.

CONCLUSION

The study intended to assess the knowledge of hypertensive patients regarding stroke prevention before and after health education. This will help the patient's to gain knowledge in the areas concerned.

The findings revealed that post test knowledge score was higher than the pre test knowledge score regarding stroke prevention. Therefore hypertensive patients need reorientation.

The health education was effective therefore as hypertensive patients are a learned community individual health education may be given. Health education will serve as a reference material in the school library.

The hypertensive patients hailing from the urban areas, who have better education revealed significant association with the increase on knowledge stroke prevention. Therefore hospitals may be equipped with stroke prevention techniques and the patients may be oriented to practice the same

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