## Research Article

# EFFECT OF EDUCATIONAL INTERVENTION ON RISK OF STROKE AMONG HYPERTENSIVE PATIENTS

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### ARTICLE INFO

### ABSTRACT

The present study was conducted with the purpose to assess effect of educational intervention on risk of stroke. Randomized control trial was conducted on 300 samples by using randomized block sampling technique where 150 samples were included in each group (control and study group). Investigator has prepared risk score card and life style checklist; the tool was divided in three sections, Section I includes demographic information, Section II includes baseline data, Section III consist of assessment of risk, risk score was divided into 3 categories like high risk, caution, low risk. Content validity was done from experts to ensure content validity of the tool. Reliability was done by inter-rater method calculated value was 0.88 and 0.93. Pre test was conducted for both groups. Educational intervention was given to study group and post test one was conducted for both groups after one month of intervention and after three month post test two was conducted.

Result shows that in pretest control group, 60% of them had medication for hypertension. In posttest1 control group, 76.4% of them had medication for hypertension. In posttest2 control group, 60.1% of them had medication for hypertension. In pretest study group, 73.3% of them had medication for hypertension. In posttest1 study group, 99.3% of them had medication for hypertension. In posttest2 study group, all of them had medication for hypertension.

In study group for the comparison of pretest with posttets1, p-values were 0.000, which are small (less than 0.05), the risk of the stroke significantly reduced in study group. However, for the comparison of pretest with posttest 2, p-value was 0.000, which is small (less than 0.05), the risk of the stroke significantly reduced in posttest 2.

In control group in pretest, for the comparison of pretest with posttest1, p-values were 0.550, which are large (greater than 0.05), the risk of the stroke did not significantly reduce in control group. However, for the comparison of pretest with posttest2, p-value was 0.026, which is small (less than 0.05), the risk of the stroke significantly reduced in posttest2.

In present study educational intervention was effective to reduce risk of stroke among hypertensive patients.

## INTRODUCTION

A cerebrovascular disorder is an umbrella term that refers to a functional abnormality of the central nervous system that occurs when the blood supply to the brain is disrupted. Stroke can be divided into two major categories: ischemic and hemorrhagic. An ischemic stroke is also known as a cerebrovascular accident or brain attack. The term brain attack has been used to suggest to health care practitioners and the public that a stroke is an urgent health care issue similar to a heart attack.[1]

Hypertension is major risk for cerebral atherosclerosis and stroke. Even in mildly hypertensive people the risk of stroke is four times higher than in normotensive people. Adequate control of blood pressure diminishes the risk of stroke. Life style modification are indicated for all patients with prehypertension and hypertension.[2]

Education is a process, the chief goal of which is to bring about desirable changes in the behavior of the learner in the form of acquision of knowledge, proficiency in skills and development of attitudes.[3]

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## Need for the Study

Incidence of stroke is increasing stroke is a common medical emergency with an annual incidence of between 180 and 300 per 100000. The incidence rises steeply with age and in many developing countries the incidence is rising because of the adoption of less healthy life style. About one-fifth of patients with an acute stroke will die within a month of the event, and at least half those who survive will leave with physical disability. non-modifiable risk factors of stroke are age, gender, heredity, previous vascular event and modifiable risk factors are high blood pressure, heart disease, hyperlipidemia, smoking, excess alcohol consumption, polycythemia, oral contraceptive and social deprivation.[4]

Developing countries like India are facing a double burden of communicable and non-communicable diseases. Stroke is one of the leading causes of death and disability in India. The estimated adjusted prevalence rate of stroke range, 84-262/100,000 in rural and 334-424/ 100,000 in urban areas. The incidence rate is 119-145/100,000 based on the recent population based studies. There is also a wide variation in case fatality rates with the highest being 42% in kolkata. The government is focusing on early diagnosis, management, infrastructure, public awareness and capacity building at different levels of health care for all the non-communicable diseases including stroke. An organized effort from both the government and the private sector is needed to tackle the stroke epidemic in India.[5]

Non-communicable diseases (NCDs) are defined as diseases of long duration, and are generally slow in progression. NCDs are the leading cause of death in the world, responsible for 63% deaths worldwide in 2008. NCDs accounts for 53 percent of deaths in India. Based on available evidence cardiovascular diseases (24 percent), chronic respiratory diseases (11 percent), cancer (6 percent) and diabetes (2 percent) are the leading cause of mortality in India. Treatment cost is almost double for NCDs as compared to other conditions and illnesses. Burden of NCDs and resultants mortality is expected to increase unless massive efforts are made to prevent and control NCDs and their risk factors.[5]

All above article shows that developed countries have taken initiative to educate community about stroke but very little effort have taken by developing countries. Stroke is one of the leading causes of death and disability in India. So investigator felt need to assess awareness regarding prevention, identification of early signs and early care of stroke and educate community about stroke

### Statement of the Problem

A study to assess the effect of educational intervention on risk of stroke among hypertensive patients.

### Objectives

1. To measure risk of stroke before and after intervention in study and control group among hypertensive patients.
2. To compare effectiveness of educational intervention in study and control group.

## MATERIALS AND METHODS /STUDY

Evaluative approach and randomized controlled trial (study) design was used to assess the effect of educational intervention on risk of stroke and life style modification. Population was divided into two groups control group and study group by randomized block sampling technique. sample size of the study was consist of 300 hypertensive patients from selected setting in which 150 samples for study group and 150 samples for control group was selected those who have attended outpatient department of hospitals. Investigator has prepared risk score card. Tool was divided into III sections  Section I includes demographic information which consist of 10 items like age, gender, education, occupation, monthly income, religion, duration of disease, suffering from other disease, taking medication. Section II includes baseline data items are pulse, BP, height, weight (BMI), waist circumference, hip circumference (waist/hip ratio), BSL, and cholesterol.

Section III consist of assessment of risk includes blood pressure, atrial fibrillation, smoking, cholesterol, diabetes, exercise, diet/BMI, stroke in family each risk categories in 3 sections given 1 point. Risk   score was divided into 3 categories like high risk -3, caution- 4-6, low risk 6-8.  Content validity was done from experts to ensure content validity of the tool. Reliability was done by inter-rator method r value was 0.93. Pretest was done on both groups, after pretest educational intervention was given to study group and posttest was conducted on both groups after one month and three month.

## RESULTS AND DISCUSSION

Description of samples as per personal characteristics  (Table 1) are in control group, 34% of the hypertensive patients had age more than 60 years, in study group, 34.7% of the hypertensive patients had age more than 60 years. .

**Table 1** Description of samples (hypertensive patients) based on their personal characteristics in terms of frequency and percentages

n=150, 150

| Demographic variable | Control group | | Study  group | |
|---|---|---|---|---|
| | freq | % | freq | % |
| **Age** | | | | |
| up to 35 years | 18 | 12.0% | 17 | 11.3% |
| 36-40 years | 13 | 8.7% | 11 | 7.3% |
| 41-45 years | 10 | 6.7% | 12 | 8.0% |
| 46-50 years | 14 | 9.3% | 16 | 10.7% |
| 51-55 years | 16 | 10.7% | 23 | 15.3% |
| 56 60 years | 28 | 18.7% | 19 | 12.7% |
| >60 years | 51 | 34.0% | 52 | 34.7% |
| **Gender** | | | | |
| females | 78 | 52.0% | 84 | 56.0% |
| male | 72 | 48.0% | 66 | 44.0% |
| **Education** | | | | |
| illiterate | 51 | 34.0% | 52 | 34.7% |
| < 10th | 55 | 36.7% | 56 | 37.3% |
| 10th pass | 27 | 18.0% | 31 | 20.7% |
| 12th pass | 9 | 6.0% | 7 | 4.7% |
| UG | 8 | 5.3% | 4 | 2.7% |
| PG | 0 | 0.0% | 0 | 0.0% |
| **Income** | | | | |
| up to Rs. 5000 | 1 | 0.7% | 45 | 30.0% |
| Rs. 5001-15000 | 101 | 67.3% | 96 | 64.0% |
| Rs.15001-25000 | 46 | 30.7% | 8 | 5.3% |
| Rs 25001-35000 | 2 | 1.3% | 1 | 0.7% |
| **Occupation** | | | | |
| business | 42 | 28.0% | 28 | 18.7% |
| house hold work | 58 | 38.7% | 76 | 50.7% |
| laborer | 0 | 0.0% | 5 | 3.3% |
| retired | 8 | 5.3% | 17 | 11.3% |
| service | 42 | 28.0% | 24 | 16.0% |

In control group, 52% of them were females and 48% of them were males, in study group, 56% of them were females and 44% of them were males. In control group, 36.7% of them had education below 10th standard, in study group, 37.3% of them had education below 10th standard. In control group, 67.3% of them had income Rs.5000-15000, in study group, 64% of them had income Rs.5000-15000. In control group, 38.7% of them were housewives, in study group, 50.7% of them were doing household work.

In control group (Table 2), 76.7% of them were married, in study group, 81.3% of them were married. In control group, 88% of them were Hindu, in study group, 85.3% of them were Hindu. In control group, 52% are suffering from hypertension last 1yr, in study group, 57.3% of them are suffering from hypertension last 1 year. In study group, 50% of them did not had any disease, 43.3% of them had diabetes mellitus, 3.3% of them had heart disease, 3.3% of them had some other disease. In control group, 48.7% of them did not had any disease, 50% of them had diabetes mellitus and 1.3% of them had some other disease. In control group, 60% of them had medication for hypertension, in study group, 73.3% of them had medication for hypertension.

**Table 2** Description of samples (hypertensive patients) based on their personal characteristics in terms of frequency and percentages

n=150, 150

| Demographic variable | Control group | | Study group | |
|---|---|---|---|---|
| | freq | % | freq | % |
| **Marital status** | | | | |
| married | 115 | 76.7% | 122 | 81.3% |
| separated | 1 | 0.7% | 0 | 0.0% |
| unmarried | 8 | 5.3% | 3 | 2.0% |
| widow/widower | 26 | 17.3% | 25 | 16.7% |
| **Religion** | | | | |
| christian | 0 | 0.0% | 4 | 2.7% |
| hindu | 132 | 88.0% | 128 | 85.3% |
| muslim | 17 | 11.3% | 17 | 11.3% |
| other | 1 | 0.7% | 1 | 0.7% |
| **Duration** | | | | |
| up to 1 year | 78 | 52.0% | 86 | 57.3% |
| 1-3 years | 24 | 16.0% | 28 | 18.7% |
| 3-7 years | 20 | 13.3% | 20 | 13.3% |
| > 7 years | 28 | 18.7% | 16 | 10.7% |
| **Disease** | | | | |
| DM | 65 | 43.3% | 75 | 50.0% |
| Heart disease | 5 | 3.3% | 0 | 0.0% |
| other | 5 | 3.3% | 2 | 1.3% |
| no | 75 | 50.0% | 73 | 48.7% |
| **Medication** | | | | |
| no | 60 | 40.0% | 40 | 26.7% |
| yes | 90 | 60.0% | 110 | 73.3% |

When hypertensive patients have asked are they taking medication (Table 3) in pretest control group, 60% of them had medication for hypertension. In posttest1 control group, 76.4% of them had medication for hypertension. In posttest2 control group, 60.1% of them had medication for hypertension. In pretest study group, 73.3% of them had medication for hypertension. In posttest1 study group, 99.3% of them had

medication for hypertension. In posttest2 study group, all of them had medication for hypertension.

**Table 3** Medication in pretest and posttest

N=150, 150

| Test | Medication | Control group | | Study group | |
|---|---|---|---|---|---|
| | | freq | % | freq | % |
| pretest | No | 60 | 40.0% | 40 | 26.7% |
| | Yes | 90 | 60.0% | 110 | 73.3% |
| posttest1 | No | 35 | 23.6% | 1 | 0.7% |
| | Yes | 113 | 76.4% | 148 | 99.3% |
| posttest2 | No | 59 | 39.85% | 0 | 0.0% |
| | Yes | 89 | 60.1% | 148 | 100.0% |

Risk analysis of hypertensive patients (Table 4) shows that in study group in pretest, 40% of the hypertensive patients had high risk, 58.7% of them had low risk and 1.3% of them need caution. In posttest1, 16.8% of the hypertensive patients had high risk, 82.6% of them had low risk and 0.7% of them need caution. In posttest2, 11.4% of the hypertensive patients had high risk, 87.2% of them had low risk and 0.7% of them need caution. This indicates that the intervention remarkably improved the risk of stroke among hypertensive patients. Fisher's exact test was used to compare the pretest against posttest1 and posttest2. For these comparisons, p-values were of the order of 0.000, which is small (less than 0.05), the risk of the stroke significantly reduced after intervention.

**Table 4** Risk of stroke among hypertensive patients before and after intervention

N=150, 150

| Group | Risk | Pretest | | Posttest1 | | Posttest2 | | P-value (Pretest and Posttest1) | P-value (Pretest and Posttest2) |
|---|---|---|---|---|---|---|---|---|---|
| | | Freq | % | Freq | % | Freq | % | | |
| Study | High risk | 60 | 40.0% | 25 | 16.8% | 17 | 11.5% | 0.000 | 0.000 |
| | Caution | 2 | 1.3% | 1 | 0.7% | 1 | 0.7% | | |
| | Low risk | 88 | 58.7% | 123 | 82.6% | 130 | 87.8% | | |
| Control | High risk | 58 | 38.7% | 52 | 35.1% | 39 | 26.4% | 0.550 | 0.026 |
| | Caution | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | | |
| | Low risk | 92 | 61.3% | 96 | 64.9% | 109 | 73.6% | | |

In control group in pretest, 38.7% of the hypertensive patients had high risk and 61.3% of them had low risk. In posttest1, 35.1% of the hypertensive patients had high risk and 64.9% of them had low risk. In posttest2, 26.4% of the hypertensive patients had high risk and 73.6% of them had low risk. This indicates that the intervention remarkably improved the risk of stroke among hypertensive patients. Fisher's exact test was used to compare the pretest against posttest1 and posttest2. For the comparison of pretest with posttets1, p-values were 0.550, which are large (greater than 0.05), the risk of the stroke did not significantly reduce in control group. However, for the comparison of pretest with posttest2, p-value was 0.026, which is small (less than 0.05), the risk of the stroke significantly reduced in posttest2.

## CONCLUSION

In pretest control group, pre test to post test difference is less but in study group pre test to post test improvement in taking medication is 100% all samples were having medication at the post test 2. In study group for the comparison of pretest with posttets1and 2, the risk of the stroke significantly reduced in study group. For the comparison of pretest with posttets1, the risk of the stroke did not significantly reduce in control group.

The risk of the stroke significantly reduced in posttest 2. Educational intervention was effective in study group than control group.

**Acknowledgement**

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