A PROSPECTIVE CASE CONTROL STUDY ON IMPACT OF PATIENT COUNSELLING BY CLINICAL PHARMACIST IN IMPROVING MEDICATION ADHERENCE IN PATIENTS WITH CEREBROVASCULAR ACCIDENT AT A TERTIARY CARE HOSPITAL

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ABSTRACT
Stroke is the third most health challenge in the world. A hospital based prospective case control study was done at a tertiary care hospital over a period of six month to analyse the impact of patient counselling in improving medication adherence of the stroke patients. It was found to be improved after patient education about drugs. The pharmacist play an essential role in improving medication adherence and reducing the incidence of various complications and recurrent stroke.

KEYWORDS: Stroke, medication adherence, complications, prospective.

INTRODUCTION

Stroke is the third major cause of mortality worldwide, after cardiovascular disease (CHD) and cancer of all types and commonly occurs in elderly. WHO has defined stroke as "rapidly developing clinical signs of focal or global disturbance of cerebral function, lasting for more than twenty four hours or leading to death, with no apparent cause other than vascular origin".[1] Medication adherence refers to whether patients take their medications as prescribed and whether they continue to take a prescribed medication. Medication non- adherence is a growing concern among the health care professionals because of increasing evidence that it is prevalent and associated with adverse outcomes and higher costs of care. Non-adherence is not solely a patient problem but is impacted by both care providers and the healthcare system. Now a days, measurement of patient medication adherence and use of interventions to improve adherence are rare in routine clinical practice. One of the intervention which help to improve medication adherence is the patient counselling.[2] Patients with a poor understanding of their disease and medication regimen and their personal consequences of non-adherence are more likely not to take their medications properly. Patients should be educated about the benefits of treatment and what may happen if medications are not taken as prescribed. Counselling should be tailored to address a patient's specific diseases (e.g., a stroke may occur if blood pressure medications are missed). To enhance adherence, key points of the medication regimen should be reinforced, such as how the medication works,

the proper dosage schedule and administration (e.g., show patients how to use an inhaler), what to do if doses are missed or delayed, proper storage and common and serious adverse events. Pharmacists can improve adherence by simplifying information for all patients and assuming that most patients have difficulty understanding medical terminology.[3]

Sylvie perreault et al(2012)[4] done a study on Adherence to antihypertensive agents after ischemic stroke and risk of cardiovascular outcomes. The aim of study was to assess relationship between antihypertensive (AH) drug adherence and cardiovascular (CV) outcomes among 14277 patients with a recent ischemic stroke. They concluded as adherence to AH agents is associated with adherence to other preventive therapies like statins and antiplatelets.

MATERIALS AND METHODS

Study was conducted in Department of Neurology, of 350 bedded cosmopolitan multispecialty hospital situated in Trivandrum. The study was carried out for a period of six months. The study was a prospective case control study. Patients from the department of Neurology in cosmopolitan hospital who were diagnosed with stroke during the study period, were included after obtaining the permission for collection of data and to accompany physician in Neurology ward from the Head of the Neurology department.

Sample Size

Sample size was calculated for equivalence study of a continuous response variable from the two groups. The sample size was calculated using the formula;

N=2s2 (Za+Zß)/d2

Where;

a = Type one error i.e 0.05, Za = 1.96

ß = Type two error i.e 0.20, Zß = 0.084

s = S.D of the score

d = Difference in mean score

Hence total 140 patients were included in the study i.e. 70 in each group.

Inclusion criteria

All the inpatients admitted in the department with stroke during the study period Male and female patients aged between 18- 80yrs were included.

Exclusion criteria

Age below 18 years and above 80, Patients those who were not cooperative, Psychiatric patients were excluded.

For the study the patient were categorized into two group with 70 patient in each based on those who were receiving patient counselling (case) and those who were not (control). Patients were randomly assigned in a 1:1 ratio to groups.

Data collection

The relevant data were collected while accompanying the clinician 6 days in a week and also from inpatient medical records. All the case records were reviewed and the details were collected during the particular hospital stay. A performa were designed for obtaining and evaluating drug use pattern, medication adherence, and severity of stroke. The Performa contains relevant details such as demographics, past medical history, past medication history, diagnosis, severity score, laboratory investigations, therapeutic plan.

Data analysis

The collected data were recorded in Microsoft excel sheet.

The medication adherence data were collected with the use of Morisky medication adherence scale Medication adherence before and after patient education were noted and the improvement score is analysed. The medication adherence analysis were done using box whisker plot among case and control groups. The whole data were analysed using software IBM SPSS Statistics 21. The datas were statistically analysed using paired t-test, Wilcoxon sign rank test and Mann Whitney U test for comparing adherence.

RESULTS AND DISCUSSION

Selection of case and control
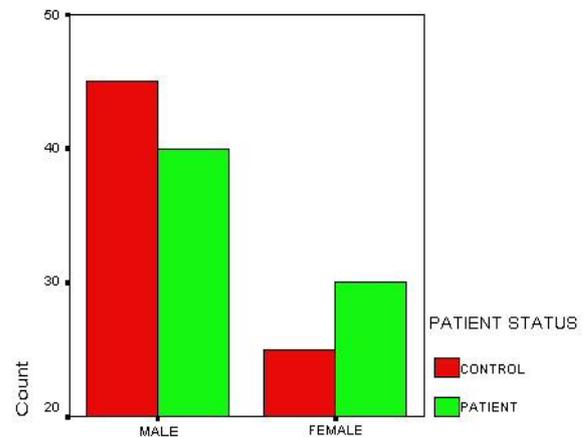
Fig:1 The graph showing the distribution of gender among case and control groups.

140 patients were randomly divided into two groups; case and control with equal number of patients in each. In control group 45 (64.3%) were males and 25 (35.7%) were females. The case group have 40 males (60.7%) and 30 females (42.9%). The difference in the distribution of gender in case and control was analysed using chi square test found to be significant. For analyzing medication adherence, randomly divided the patients to control and case. Mean age of control was 65.26±10.96 and that of case was 66.24 ± 11.77.

Distribution of stroke
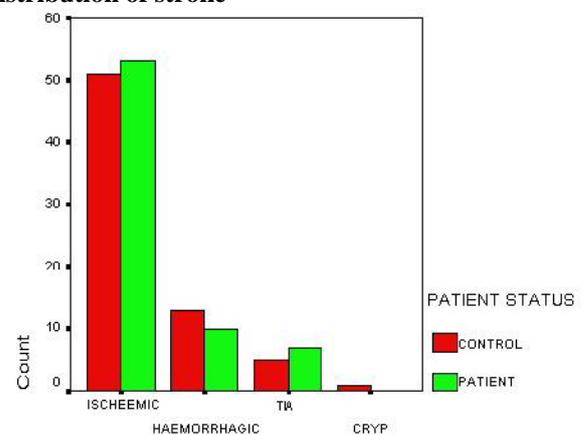
Fig:2 The graph showing the distribution of types of stroke among case and control group.

Distribution of type of stroke in control was found to be 51 patient with Ischemic stroke (72.9%), 13 with hemorrhagic (18.6%) 5 with transient ischemic attacks (7.1%) and one with cryptogenic stroke (1.4%). Case group have 53 patients with ischemic stroke (75.7%) 10 with hemorrhagic stroke (14.3%) and 7 patients with transient ischemic attacks (10%).The difference in the distribution of type of stroke in case and control was anaylsed using chi square test and found to be significant. 40 males (60.7%) and 30 females (42.9%) [Fig:1] A.
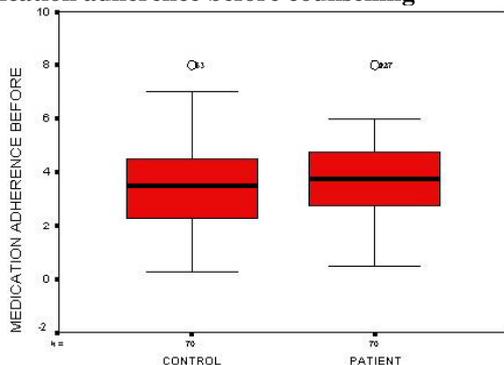
Distribution of age
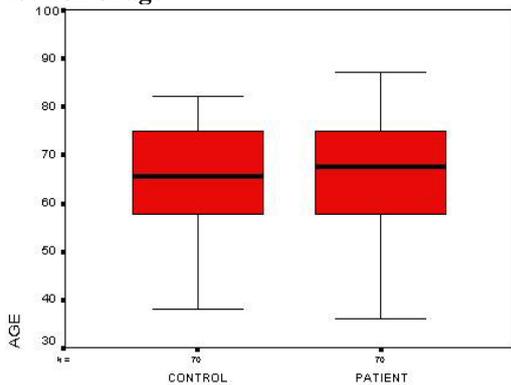
Fig: 3 *The graph showing the distribution of age in case and control groups.*

The mean age of control was 65.26yrs and standard deviation was 10.96 while mean age of case was 66.24yrs and standard deviation was 11.77. The equality of age were assessed using t-test. The standard error of mean was 1.31 in case of control and 1.41 in case of cases. 45 males (64.3%) and 25 females (35.7%).
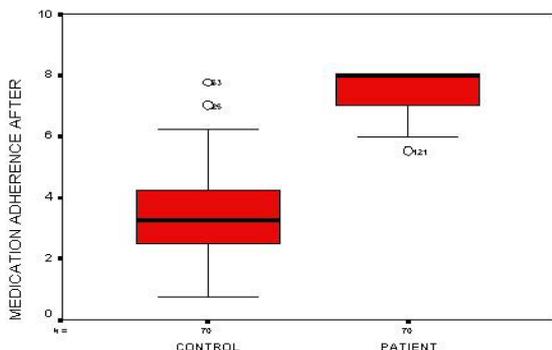
Medication adherence before counselling

Fig: 4 *The graph showing the distribution of medication adherence score in case and control before counselling.*

The medication adherence before counselling was found to be comparable with score of 3.3036 in control and 3.7321 in case group.

Medication adherence after counselling

Fig: 5 *The graph showing the distribution of medication adherence score in control and case after counselling.*

Average medication adherence score after counselling was found as 3.26 in control group and 7.63 in case group.

Medication adherence after - medication adherence before
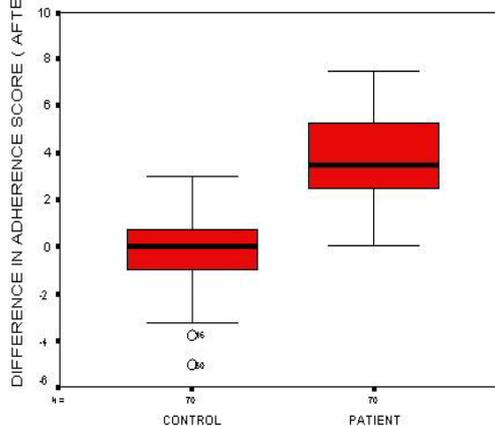
Fig:6 *The graph showing the difference in medication adherence score before and after in case and control groups.*

The difference between the score of medication adherence before and after counselling was compared in case and control groups which is represented in the graph. The adherence to treatment among stroke patients is poor before counselling. The mean adherence of control is 3.30±1.60 [fig: 4] before counselling and 3.26±1.49 [fig: 5] after counselling. The mean adherence of case is 3.73±1.61 (fig: 4) before counselling and 7.63±0.57 [fig: 5] after counselling. The average was found to be approximately equal to zero for control while for case average was 3.90.

The adherence to treatment among stroke patients was poor before counselling which has improved significantly after counselling (p <0.001). Stroke is often occurring in patients with known hypertension, diabetes, hyperlipidemia etc. According to the study done by *Marie. T. Brown et al*[5] pharmacological antihypertensive therapy has a positive safety and tolerability profile and reduces the risk of stroke by approximately 30%. According to WHO the lack of adherence to medication is the common risk factor for achieving BP control. This failure in achieving BP control leads to stroke. Adherence to therapy will decrease the incidence of secondary stroke and improvement of stroke symptoms.[5]

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REFERENCE
1. Sacco RL, Kasner SE, Broderick JP, Caplan LR, Culebras A, Elkind MSV, et al. An updated definition of stroke for the 21st century: a statement for healthcare professionals from the American Heart Association/American Stroke Association. Stroke. 2013; 44(7): p2064-89. Available from: http://stroke.ahajournals.org/content/44/7/2064.full.
2. Ho PM, Bryson CL, Rumsfeld JS. Medication adherence: its importance in cardiovascular outcomes. Circulation. 2009; 119(23): 3028-35. Available from: http://circ.ahajournals.org/content/119/23/3028.abstract.
3. Tanzi MG. Counselling to enhance medication adherence November 01, 2012. Available from: http://www.pharmacist.com/counselling-enhance-medication-adherence.
4. Perreault S, Yu AYX, Robert C, Dragomir A, White-Guay B, Dumas S. Adherence to antihypertensive agents after ischemic stroke and risk of cardiovascular outcomes. Journal of American academy of neurology. 2012 Nov 13; 79(20): 2037–2043. Available from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3511923.
5. Brown MT, Bussell JK. Medication adherence: who cares? mayo clin proc. 2011 apr; 86(4): 304–314. Available from: http://www.mayoclinicproceedings.org/article/S0025-6196(11)600074/pdf.
6. Morisky medication adherence scale.
7. Dayapoglu N, Tan M, Quality of Life in stroke patients, Neurol India, 2010; 58: 697-701. Available from: http://www.neurologyindia.com/article.asp.
8. Lindblad AJ and Howorko J. Integration of a pharmacist into a stroke prevention clinic team CJHP, 2008; 61(6): 431-36.
9. Diener HC, Bogousslavsky J, Brass LM, Cimminiello C, Csiba L, Kaste M, et al: Aspirin and Clopidogrel compared with Clopidogrel alone after recent ischaemic stroke or transient ischaemic attack in high-risk patients (MATCH): randomised, double-blind, placebo-controlled trial. Lancet, 2004; 364: 331-337.
10. Hankey GJ, Johnston SC, Easton JD, Hacke W, Mas JL, Brennan D, et al: Effect of Clopidogrel plus ASA vs. ASA early after TIA and ischaemic stroke: a substudy of the CHARISMA trial. Int J Stroke, 2011; 6: 3-9.