ASSESSMENT OF THE CARDIOVASCULAR MEDICATION ADHERENCE AND ITS RELATED FACTORS IN PATIENTS WITH CORONARY ARTERY ANGIOPLASTY AT PMC HOSPITAL NAWABSHAH.

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ABSTRACT

Intoduction: Adherence or compliance describes the degree to which a patient correctly follows medical advice. Adherence includes the ability of the patient to take medications as prescribed by their physician with regards to the correct drug, dose, route, timing, and frequency, it has been noted that compliance may only refer to passively following orders. Atherosclerosis is a disease in which the inside of an artery narrows due to the build-up of plaque.When severe, it can result in coronary artery disease, stroke, peripheral artery disease, or kidney problems, depending on which arteries are affected and then proper therapy is required. Objective: Assessment of the cardiovascular medication adherence and its related factors in patients with coronary artery angioplasty. **Methodology:** A hospital based descriptive cross-sectional study using purposive sampling technique was conductedon 269 patients during the period from January 2020 to June 2020 to determine the level of adherence with therapy among the angioplasty patients. Medication adherence was analyzed by using Morisky Medication adherence questionnaire scale (MMAS-4) and its related factors by HADS scale. Collected data was analyzed using SPSS-23 software and Microsoft Excel. **Results:** It was found thatmost of the patients were male (59.1%). The anxiety and depression were accounted for in 44.2% and 55.8% of the patients. The outcomes demonstrated that 75 patients (28%) didn't stick to their drug. From the univariatelogisitic regression analysis, the drug adherence was associated with patient's education of spouse (P=0.043), the family background of coronary artery disease history (P=0.038) and the hypertension history (P=0.096). All factors with significant level of 0.1 in the univariate analysis were analyzed in the multivariable models. **Conclusion:** It was concluded that the chances of prescription non-adherence could be higher in the illiterate patients or poorly educated spouses than the patients with spouses holding advanced education.
Key words: Adherence, Coronary Artery, Angioplasty.

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INTRODUCTION

Adherence or compliance describes the degree to which a patient correctly follows medical advice. Most commonly, it refers to medication or drug compliance, but it can also apply to medical device use, self-care, self-directed exercises, or therapy sessions. Both patient and health-care provider affect compliance and a positive physician-patient relationship is the most important factor in improving compliance [1]. Medication adherence is defined by the World Health Organization as "the degree to which the person's behaviour corresponds with the agreed recommendations from a health care provider." As of 2003, US health care professionals more commonly used the term "adherence" to a regimen rather than "compliance", because it has been thought to reflect better the diverse reasons for patients not following treatment directions in part or in full. Additionally, the term adherence includes the ability of the patient to take medications as prescribed by their physician with regards to the correct drug, dose, route, timing, and frequency, it has been noted that compliance may only refer to passively following orders [2-5]. As of 2005, the preferred terminology remained a matter of debate.Despite the on-going debate, adherence has been the preferred term for the World Health Organization, The American Pharmacists Association, and the U.S. National Institutes of Health Adherence Research Network [6]. Atherosclerosis is a disease in which the inside of an artery narrows due to the build-up of plaque. Initially, there are generally no

symptoms. When severe, it can result in coronary artery disease, stroke, peripheral artery disease, or kidney problems, depending on which arteries are affected. Symptoms, if they occur, generally do not begin until middle age [7]. The exact cause is not known. Risk factors include abnormal cholesterol levels, high blood pressure, diabetes, smoking, obesity, family history, and an unhealthy diet. Plaque is made up of fat, cholesterol, calcium, and other substances found in the blood [8]. The narrowing of arteries limits the flow of oxygen-rich blood to parts of the body. Diagnosis is based upon a physical exam, electrocardiogram, and exercise stress test, among others [9,10]. Prevention is generally by eating a healthy diet, exercising, not smoking, and maintaining a normal weight. Treatment of established disease may include medications to lower cholesterol such as statins, blood pressure medication, or medications that decrease clotting, such as aspirin. A number of procedures may also be carried out such as percutaneous coronary intervention, coronary artery bypass graft, or carotid endarterectomy[11-12].

The objectives of this study are to assess the medication adherence and its related factors among the coronary artery angioplastypatients.

METHODOLOGY

A hospital based descriptive cross-sectional study using purposive sampling technique was conducted during the period from January 2020 to June 2020 to determine the level of adherence with therapy among the angioplasty patients attending a tertiary care Peoples Medical College Hospital (P.M.C.H)Nawabshah. Medication adherence was analyzed by using Morisky Medication adherence questionnaire scale (MMAS-4). Using proforma, information about adherence to angioplasty therapy, socioeconomic data and hospital anxiety, depressiondata, cardiac patient's self-efficacy (Using HADS Scale) data was collected from 269 (based on LA point's study results, with 95% of confidence and 5% of error estimation level and P=0.772) patients, attending cardio wards that were willing to participate in the study. Verbal Consent was also taken from the participants. Collected data was analyzed using SPSS-23 software and Microsoft Excel. **Inclusion Criteria:** Patients suffering from cardiovascular disease after angioplasty, irrespective of gender, race, ethnicity, urban or rural were included in the study. Patients who were prescribed cardiovascular therapy were included. **Exclusion Criteria:** Children, disabled people, deaf patients or who were unable to communicate properly were excluded from the study.

RESULTS

Most of the patients were male (59.1%), wedded (92.6%), illiterate (46.5%), with illiterate spouses (40.5%), living with their children and spouse (59.1%) and urban (60.6%). Additionally, the greater parts of them were retired (36.9%) and housewives (81.8%), respectively as in Table 1. The anxiety and depression were accounted for in 44.2% and 55.8% of the patients, individually as in Table 2. In addition, Table 2 shows the status of anxiety and mild depression, cardiac self-adequacy and adherence of medication in these patients. The outcomes demonstrated that 75 patients (28%) didn't stick to their drug. From the univariatelogisitic regression analysis, the drug adherence was associated with patient's education of spouse (P=0.043), the family background of coronary artery disease history (P=0.038) and the hypertension history (P=0.096). All factors with significant level of 0.1 in the univariate analysis were analyzed in the multivariable models. Additionally, the education of patients (P=0.203), medication number (P=0.700), cardiovascular self-efficacy (P=0.194), anxiety (P=0.824) and scores of depression (P=0.659) were not associated with the adherence of medication. The information indicated that the chances of prescription non-adherence could be higher in the illiterate patients or poorly educated spouses than the patients with spouses holding advanced education (OR=2.64 and OR=2.95, for the patients with illiterate patients or poorly educated spouses versus the patients with secondary school certificate or more elevated level instructed patients, respectively) as described in Table 3. In spite of the fact that, the information investigation by the patients' sexual orientation uncovered that this relationship was critical just among the male patients (P=0.025). The chances of prescription nonadherence in the males with poorly educated, or ineffectively educated spouses contrasted with the males whose mates had secondary school confirmations or higher mates were 5.982 (95%CI=1.637-21.868) and 5.027 (95%CI=1.354-18.670), separately. The adherence among the patients with the family background of coronary artery disease (CAD) history was 1.782 occasions/times more than those without history of CAD. It has likewise been seen that in the people with a history of hypertension, the adherence of medication was 1.592 occasions/times more than those without hypertension. In analysis of multiple logistic regression, in view of the solid association between the patients' family background of CAD history and hypertension (70% of the patients with family background of CAD history had hypertension), the factors were excluded from the models, at the same time. Just the education of spouse's and the family background of CAD history were the independent indicators of the adherence of medication. Controlling for the family background of CAD history, the balanced chances of medicine adherence in males with illiterate or inadequately literate spouses were 3.14 and 3.37 against males whose spouses had secondary school certificate or advanced education, individually. Likewise controlling for the education of spouse of patient's, the patients with family background of CAD history were 2.06 occasions/times more bound to adhere than those without this history as described in Table 3.

Table.1 Demographic and disease characteristics of the patients

Characteristics	N (%)
Age*	58.86(10.16)
≤44	22(8.2)
45-64	163(60.6)
≤65	84(31.2)
Gender	
Male	159(59.1)
Female	110(40.9)
Family history of coronary artery disease Yes	137(50.9)
No	132(49.1)
History of hypertension	
Yes	145(53.9)
No	124(46.1)
History of underlying disease	
Yes	127(47.2)
No	142(52.8)
History of CVA	
Yes	6(2.2)
No	262(97.4)
History of HLP	
Yes	6(2.2)
No	262(97.4)
History of DM	
Yes	119(7.1)
No	249(92.6)

*Mean(SD)

Table 2.The score of patients' depression, anxiety, medication adherence and cardiac self- efficacy status

Characteristics	N (%)
Depression	
lack of clinical symptom	51 (19)
Mild depression	150 (55.8)
Clinical depression	56 (20.8)
Anxiety	
lack of clinical symptom	15(5.6)
Mild anxiety	117(43.5)
Clinical anxiety	119(44.2)
Medication adherence Desirable	189(70.3)
Undesirable	75(28)
Cardiac self-efficacy	
Median	7
(IQR)$^\epsilon$	11
Range	0-20

Table 3. Significant predictors of medication adherence in univariate and multiple logistic regression analysis

Predictor of medication adherence	Univariate			Multivariable		
	Exp (B)	95% CI.	P	Exp (B)	95% CI.	P
Spouse's education						
(vs. diploma or higher)			0.04			0.01
Under diploma	2.49	1.23 7.04	0.01	3.37	1.39 8.17	0.00
Illiterate	2.64	1.12 6.19	0.02	3.13	1.31 7.50	0.01
Family CAD*	1.78	1.03 3.07	0.03	2.06	1.15 3.67	0.01
Hypertension*	1.59	0.92 2.75	0.09			

*Yes vs. no

DISCUSSION

Dalir Z et al 2013 found that a total of 400 questionnaires were distributed, 308 were collected back then 30 were excluded as they missed fundamental demographic information, high adherence was noticed in 24.5%, medium in 41.7%, and low adherence in 33.7% of the

participants. There was a positive correlation between the level of adherence and age [13]. Similarly in our study the adherence among the patients with the family background of coronary artery disease (CAD) history was 1.782 occasions/times more than those without history of CAD. It has likewise been seen that in the people with a history of hypertension, the adherence of medication was 1.592 occasions/times more than those without hypertension.

Dempe C,et al 2013 concluded that nonadherence to medications remains a major problem for cardiovascular patients. It leads to poor clinical outcomes, including rehospitalization, subsequent myocardial infarction, and increased mortality in various patient settings. Clinicians need to use multiple approaches to simple solutions to improve their patients' short- and long-term medication adherence [14]. Similarly in our study the chances of prescription non-adherence found higher in the illiterate patients or poorly educated spouses than the patients with spouses holding advanced education.

Rodriguez F, et al 2013 concluded thatthe need for urgent, multifaceted interventions, given the burden of cardiovascular diseases and the clinical and economic consequences of medication non-adherence. These interventions include affordable medications, easy-to-use medication regimens with fewer daily doses, ongoing communication between patients and healthcare providers, and improvement of the patient provider partnership [15]. Similarly in our findings Controlling for the family background of CAD history, the balanced chances of medicine adherence in males with illiterate or inadequately literate spouses were 3.14 and 3.37 against males whose spouses had secondary school certificate or advanced education, individually. Likewise controlling for the education of spouse of patient's, the patients with family background of CAD history were 2.06 occasions/times more bound to adhere than those without this history.

Due to lack of awareness, poor communication between a provider and a patient about the medications, or difficulty explaining and understanding the benefits and adverse effects of complex drug therapies, Unintentional patient behavioral factors, such as forgetfulness, Patient's physical or cognitive impairments, Socioeconomic factors, such as low health literacy, and high medication costs, as well as lack of transportation to fill prescriptions at a pharmacy. We are still unable to nip this serious issue in the bud. There is the need of an extensive research to find out the bottle neck. The risk of suffering from myocardial infarction and stroke among non-adherent hypertension patients is more than two times higher compared to hypertension patients who adhere to taking their medicine.

CONCLUSION

It was concluded that the chances of prescription non-adherence could be higher in the illiterate patients or poorly educated spouses than the patients with spouses holding advanced education.Most of the patients need to get multi drug adherence to forestall cardiac recurrent occasions, for example, restenosis. Thusly, it is suggested cardiac rehabilitation centers in the society be implicit, with the goal that the patients could get benefit by the important supports and training to accomplish most fast recovery from strategies and evade the hefty costs incited by the recurring signs and manifestations acquired on the patient and the health care system.

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