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Research Article

Augmented Effect of Counseling by Pharmacist in Hospitalized Cardiovascular Disease Patients: A Randomized Test of Knowledge, Attitude and Practice

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Abstract

Aims: The study was conducted on hospitalized patients diagnosed with cardiovascular disease (CVD) and undergoing treatment for it, to evaluate the impact of clinical counseling by pharmacists in changing the Knowledge, Attitude and Practice (KAP) outcomes.

Methods and Material: The patients were regularly counseled by written (distributing patient information leaflets) and oral (directly by the pharmacist) communication for nine months. Pharmaceutical care, comprising of patient education, was provided to 125 patients and KAP outcomes were evaluated. A set of 25 questions were asked to 107 patients, which included baseline and follow-up for the patients. In this study, the medications, disease, risk factors and lifestyle modifications of the patients were also considered.

Results: 107 patients had completed the study. In the study, the knowledge, attitude, and practice of the patients increase. Patient counseling showed a positive impact on the patients. KAP outcome was found to get improved significantly after the counseling.

Conclusions: Patient counseling by the clinical pharmacist improved the patient knowledge towards the disease. Moreover, a pharmacist can encourage the patient, so that they can play a pivotal role in succumbing disease.

Keywords: Cardiovascular disease, KAP outcome, pharmaceutical care, clinical counseling, and hospital care.

Introduction

Nowadays pharmacist (hospital and retail) not only dispenses the medicine to the public but also provides patient assistance for an easy and fast curing of disease. Counseling by the pharmacist is now becoming indispensable in monitoring drug therapy in institutional settings [1-3]. Evidence suggests that pharmacists who provide disease management services can increase patient compliance and improve treatment outcomes [4-9]. It is the duty of a pharmacist to counsel patients before dispensing the medication [10, 11]. The ultimate goal of this counseling is to provide information directed at encouraging the safe and appropriate use of drugs, thereby enhancing therapeutic outcomes [12]. Several guidelines have been put forward like monitoring of hypotension in ACE Inhibitors and Alpha Blocker treatment, explaining the methods to prevent detect and manage hypoglycemia in insulin therapy [13].

The World Health Organization (WHO) report stated that Cardiovascular Disease (CVD) was one of the most common causes of death in most countries by the end of the 20th century [14-16] Unfortunately, less attention is given towards this CVD epidemic in the developing countries. Around 5.3 million people and 8.5 million died in developed and developing countries respectively, due to CVD [17-19]. Common risk factors for CVD are hypertension, high blood cholesterol, diabetes, obesity; physical inactivity is on a rise in the current time [20, 21]. Adoption of adverse lifestyle, rapid industrialization and urbanization are also a major cause of CVD [22, 23]. Cases of coronary heart disease (CHD) which is due to high blood pressure, cholesterol, body mass index and tobacco are a common cause of CHD in young age group [15, 24-26].

In a randomized trial on 217 patients, pharmacists have been reported improve the CVD risk factors for diabetes patients by counseling [27, 28]. A study in Hong Kong demonstrated that pharmacists' counseling, together with the assessment of cholesterol concentrations, had positive impacts on the management of hyperlipidemia, including improved drug compliance, better treatment endpoints, and patient satisfaction [29, 30]. A pharmacy-led intervention can improve medication compliance in patients with moderate to severe heart failure [31]. A randomized controlled trial showed the positive impact of pharmacist counseling in improving the patient's compliance in lipid lowering therapy of patients undergoing coronary artery revascularization [32, 33]. Till recently the impact of Pharmacist counseling on the patient of CVD has not been done. A study was conducted, at Care Hospital Bareilly, Bareilly, as a survey in which questionnaires were developed related to the Knowledge, Attitude and Practice (KAP) of the patient towards all CVD. This study was conducted to find the effect of counseling in faster disease curing by including patients in the management of the disease.

Subjects and Methods

The study was conducted in the outpatient clinic of the department of medicine at Care Hospital Bareilly, Bareilly, between Sep, 2020 to Jan, 2021. The hospital was a 1600-bed, tertiary care health center with various specialty departments. The hospital was located on the outskirts of Bareilly, which allowed rural patients to participate in the study. The study was approved by the "Institutional Ethical Committee" at Care Hospital Bareilly, Bareilly. The study was conducted to counsel hospitalized patients having CVD, undergoing treatment for it, and to evaluate the impact of counseling in terms of KAP outcomes. In the counseling main consideration was given to the major risk factors involved in the CAD.

KAB Questionnaire was developed by the hospital head committee in two languages: Hindi and English. For the reliability of test, pilot test was conducted. It consisted of 25 questions (Box 1): thirteen were knowledge related (number 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 21 and 22) in which patient knowledge for the CVD was considered, four were attitude related (number 12, 13, 19 and 23) in which patient attitude towards the disease was considered and eight were practice-oriented (number 14, 15, 16, 17, 18, 20, 24 and 25) in which patients attitude towards the disease and their lifestyle was seen.

The patients were admitted in the medicine ward of the hospital. Men and women having CVD were included in the study. All the patients were literate and were at least intermediate pass. All the patients were Hindu and were from medium income group (all were above poverty line). Children, pregnant women, and mentally incompetent patients were excluded from the study. KAP questionnaires were used to evaluate baseline scores for all enrolled patients on the day of admission. After the first day, follow-up scores were evaluated by the enrolled patient in the hospitals. The patients were counseled (for two times; one for baseline and other for follow-up) throughout their hospital stay; patients were counseled regarding their disease, medications, and lifestyle modifications (e.g. nutrition, physical activity, adhering to the medications and regular blood pressure checkups). For providing better effective patient information, written and verbal patient counseling was done. In written counseling Patient Information Leaflets (PIL) on CVD were provided to patients with their respective local language. The leaflet contains information, which is relevant for the patient. In verbal counseling pharmacist informed the patient about the disease, asked them to follow drug regimen regularly, to improve patient's lifestyle and encouraged them to fight the disease with courage. Then the pharmacist did the follow-up session for the patients and then documented the details in a patient profile developed for the study. To reduce the patient non-compliance, patients were provided with aids such as envelopes containing their medication and medication calendar.

Results

A total of 125 patients were enrolled in the study. Patients who completed all follow-up visits until June 30, 2011, were included in the analysis. Of the 125 patients enrolled, 107 completed the study. Age distribution of the patients was that 19 patients (17.76%) were of age groups of 20-40, 53 patients (49.53%) were between 41-60 years of age and 35 patients (32.71%) were above 60 years of age (Table I). The sex distribution consists of 49 women (45.79%) and 58 men (54.21%) in the study. Among the participants in the

study population, 71 patients (74.7%) had a history of CVD of less than five years' duration. The average weight of patients found to be 69.57 kg at the baseline. But after counseling had been provided the average weight of the patients was reduced to 67.62 Kg. The BMI of the baseline patients was found to be 27.84 Kg/m_2 which were reduced to 27.06 Kg/m_2 at the follow-up. Hindi being the local language was most frequently used but some patients were more convenient with English. Most patients were counseled for a period of 30 to 60 minutes during the initial visit with the pharmacist. Patients were also counseled on the subsequent days of their hospital stay based on their requirements. In general, the most time was devoted to elderly patients and patient of low education level.

The response of the patients to the questions was evaluated. A set of 25 questions were asked to 107 patients, which included baseline and follow-up for the patients. The response of the patients to the questions was evaluated for knowledge, attitude and practice separately. Evaluation of knowledge aspects of KAP questionnaire: There was a total of 13 questions addressing the knowledge aspects (Question Number 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 21 and 22). The patients who had given right answers to the questions are represented in Table: II. Score (number of correct answers) of the knowledge-based questions were added and the median was calculated for patients (baseline and follow-up). It was found that mean of the patients increased from 64.54 to 100.15 after the patient counseling. There was a total of 4 questions addressing the attitude aspects (Question Number 12, 13, 19 and 23). The patients who had given right answers to the questions are shown in Table: III.

Score (number of correct answers) of the attitude-based questions were added and the median was calculated for patients. The median of the attitude-based questions was increased from 69.25 to 105.25 for the patients after the patient counseling. Evaluation of Practice aspects of KAP questionnaire: There was a total of 8 questions addressing the Practice aspects (Question no. 14, 15, 16, 17, 18, 20, 24 and 25). The patients who had given right answers to the questions are shown in Table: IV. Score (number of correct answers) of the practice-based questions were added and the median was calculated for patients. It was found that there is an increase in the median from 46 to 78.86 after the patient counseling.

Discussion

The present study was conducted to evaluate the impact of counseling in CVD patients' for understanding the disease, drug therapy, and lifestyle of the patient. It was found that counseling was effective in improving the patients' knowledge, attitude, and practices for the disease. Similar studies like telephone counseling by a pharmacist in reducing mortality in patients receiving polypharmacy and an individualized counseling done by the pharmacist for the treatment of Hyperlipidemia have shown positive results [30, 34]. KAP study for diabetes patients has been done at Erode district of South India [35] and in Western Nepal which showed good results [36]. But contrary to our study done on the Diabetes patient at Kasturba Hospital, Manipal in which knowledge of the diabetic patient was improved but no significant improvement was observed in attitude and practice of the patients [13, 37].

The major role of the pharmacist in tobacco and alcohol cessation has been observed [38, 39]. Moreover, pharmacist counseling has shown a positive result in improving patient compliance [40]. In a different study on pharmacist showed that patient education was most successful in altering compliance improvement. Efforts to improve health by increasing patient knowledge alone were rarely successful. Behaviorally oriented programs, often with special attention to changing the environment in which patients care for themselves, were consistently more successful at improving the clinical course of chronic disease [41]. Raynor stated that pharmacist has a major role in improving patient compliance [42]. In this paper information given by the pharmacist helped in improving patient knowledge like symptoms of the disease, part of body affected and adverse effects if not treated properly, eating habits and lifestyle modifications. In a different study, Fisher stated that pharmacist encouragement can increase the patient attitude towards the disease [43]. Here CVD was not considered as a burden as well as the propensity of the patient in learning the cure of the disease has also increased.

Finally, the patient also acquires good daily practices: as most of them quit smoking, drinking, and excessive fat consumption. The main aim of counseling was to improve patient compliance. Several strategies were taken to encourage the patient adhering to the

treatment regimen. In the current study, the pharmacist monitored the patient chart for correct doses, drug interactions, and any needed dosage adjustments. Lifestyle changes are usually necessary; these include dietary adjustments, exercise, and following an appropriate drug regimen. Further studies can be planned to evaluate the effect of counseling, by a clinical pharmacist, on the stress level of the patient especially suffering from chronic diseases. The study included tertiary care hospitals with revascularization facilities. The results of this survey should therefore not be generalized to all medical centers within this region. Moreover, the study did not evaluate the impact of patient counseling on compliance with treatment.

Conclusion

In India, the pharmacist is usually viewed as a person who merely fills the prescription and hands out the medications quickly. The observations of our study reveal a shift in the attitude of patients towards the pharmacist as a CVD counselor. The results of the study also suggest that pharmacist counseling may have an impact in improving the perception of disease, diet, and lifestyle. Pharmacists, being active members of the healthcare team can play an important role in providing patient counseling to improve patient compliance and hence the therapeutic outcomes and quality of life. Moreover, the patient counseling by pharmacists also enables the doctors to spend more time on examination and diagnosis the patients as the counseling part is taken care of by the pharmacist.

S. No	*No of students*	*Age range*
1	19	20-40
2	53	41-60
3	35	>60

Table 1: Age wise distribution of patients.

Question no.	*Baseline patient n(%)*	*Follow up patient n(%)*
1	80	107
2	78	100
3	75	107
4	55	107
5	70	100
6	45	76
7	50	80
8	48	100
9	74	107
10	80	107
11	54	102
21	70	105
22	60	104
Mean	64.54	100.15

Table 2: Percentage evaluation of the patients giving correct answers for knowledge aspect of KAP questionnaires.

Question no.	*Baseline patient n(%)*	*Follow up patient n(%)*
12	64	100
13	80	107
19	78	107
23	55	107
Mean	69.25	105.25

Table 3: Percentage evaluation of the patients giving correct answers for attitude aspect of KAP questionnaires.

Question no.	*Baseline patient n (%)*	*Follow up patient n (%)*
14	58	78
15	35	54
16	28	47
17	54	88
18	38	78
22	46	100
24	53	94
25	56	92
Mean	46	78.88

Table 4: Percentage evaluation of the patients giving correct answers for practice aspect of KAP questionnaires.

Box 1: Kap Ouestionnaire

1. Cardiovascular disease is a condition of
   a) Heart problem
   b) Liver problem
   c) Kidney problem
   d) I don't know at all
2. The part of body that is affected when you have cardiovascular diseases is?
   a) Heart
   b) Lungs
   c) Kidney
   d) Liver
   e) I don't know at all
3. Symptoms of cardiovascular disease are
   a) Chest pain
   b) Breathlessness
   c) Weakness
   d) All the above
   e) I don't know at all

4. Cardiovascular disease if not treated may lead to
    a) Heart blockage
    b) Heart will stop working
    c) Heart attack
    d) All the above
    e) I don't know at all
5. Do you have High Blood Pressure (Hypertension) problem?
    a) Yes
    b) No
6. Is there any family history of heart disease?
    a) Yes
    b) No
7. Do you have diabetes problem?
    a) Yes
    b) No
8. In cardiovascular patient, the diabetes can
    a) Increase the risk of heart attack
    b) Increase kidney problem
    c) Increase eye problem
    d) All the above
    e) I don't know at all
9. A cardiovascular patient should not eat food rich in
    a) Fat
    b) Carbohydrate
    c) Proteins
    d) I don't know at all
10. Lifestyle modifications required for cardiovascular disease are:
    a) Healthy diet
    b) Stop smoking and alcohol intake
    c) Weight reduction
    d) Exercise/Yoga
    e) All the above
11. Regular follow up of cardiovascular disease will help in knowing the status of:
    a) Leaver function
    b) Heart function
    c) Kidney function
    d) I don't know
12. Is cardiovascular disease being burden in your life
    a) Yes
    b) No
13. Would you like to learn how to manage cardiovascular disease?
    a) Yes
    b) No

14. Do you smoke at present time (cigarettes, beedi)?
    a) Yes
    b) No
15. Is anybody smoke at your home
    a) Yes
    b) No
16. Do you chew tobacco?
    a) Yes
    b) No
17. Do you consume alcohol?
    a) Yes
    b) No
18. If yes, how often you consume alcohol
    a) A few times a year
    b) Two three time a month
    c) Once a weak
    d) 2-3 times a weak
    e) Daily
    f) I don't know
19. Do you think smoking, chewing tobacco, alcohol consumption is injurious to your health?
    a) Yes
    b) No
20. What kind of fat do you mostly use for food preparation at your home?
    a) Vegetable oil
    b) Butter oil ghee
    c) Another animal fat
    d) Coconut oil
    e) No fat at all
21. The well-balanced diet includes.
    a) Green leafy vegetables
    b) Low sugar, oil, and fat
    c) Fiber rich food
    d) All the above
22. What do you think treatment of CVD comprises?
    a) Antibiotics
    b) Cardiovascular disease medicines and proper lifestyle
    c) Blood transfusion
    d) I don't know
23. What do you think upon control of your cardiovascular diseases, medicines?
    a) Can be stopped immediately
    b) Should be continued
    c) Can be stopped after a month
    d) I don't know

24. Do you miss taking the doses of your CVD medication?
    a) Yes
    b) No
25. If yes, how often.
    a) Occasionally
    b) Once a weak
    c) Once a month
    d) I don't know

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Conflict of Interest

The authors declare no conflict of interest.

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