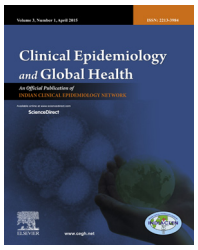
Available online at www.sciencedirect.com
ScienceDirect
journal homepage: www.elsevier.com/locate/cegh



Original Article

Impact of medication therapy management on knowledge, attitude and practice among diabetic patients

Belsy Boban [a,**], K.S. Aswathy [a], B.M. Athira [a], M. Karthikeyan [b,*], Augustine Xavier [a], R.S. Aravind [a]

[a] Al-Shifa College of Pharmacy, Perinthalmanna, Malappuram, Kerala, India
[b] Department of Pharmacology, Ahalia School of Pharmacy, Kozhipara, Palakkad, Kerala, India

ARTICLE INFO

Article history:
Received 26 July 2016
Accepted 8 November 2016
Available online xxx

Keywords:
Knowledge
Attitude
Practice
Medication therapy management
Diabetes

ABSTRACT

Objectives: The objective of the study was to assess the impact of knowledge, attitude and practice on medication therapy management in diabetic patients in South Kerala, India. This study was designed exclusively to identify the pharmacist's role in patient care using the pharmacist-led MTM programme.

Methods: A 15 item questionnaire was designed to assess the knowledge, attitude and practice on diabetic patients. KAP questionnaire consists of 7 knowledge questions, 3 attitude questions and 5 practice questions. 104 diabetic patients from general medicine were selected for the study for 6 months duration. The questionnaire was given to the patients before and after providing MTM service to the patients.

Key findings: The study revealed that the knowledge and attitude of diabetic patients were improved after providing MTM service whereas practice was not improved supporting the previous study evidences.

Conclusion: The study identified that the pharmacist-led MTM programme has the potential to improve optimal diabetes management by involving the patients as a part of the health care team. The ability of the clinical pharmacist to build trusting relationships with patients and providers is essential for the success of such a programme.

1. Introduction

Pharmaceutical care has been defined as ''the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life.'' These outcomes can include curing disease, eliminating or reducing a patient's symptoms, slowing disease progression, or disease prevention.[1] According to Medicare Prescription Drug, Improvement, and Modernization Act of 2003, the act defined it as

* *Corresponding author*. Tel.: +91 9656111669.
** *Corresponding author*.
E-mail addresses: belsyboban6@gmail.com (B. Boban), karthikeyanpgt@gmail.com (M. Karthikeyan).
http://dx.doi.org/10.1016/j.cegh.2016.11.002

''a program of drug therapy management that may be furnished by a pharmacist and that is designed to assure, with respect to targeted beneficiaries that covered medications are appropriately used to optimize therapeutic outcomes through improved medication use, and to reduce the risk of adverse events, including adverse drug interactions.''[2] The impact of assessing the knowledge, attitude and practice of MTM diabetic patients may improve their compliance and adherence to drug therapy. The pharmacist led MTM programme stay backs 5 major core principles includes, medication therapy review (MTR), personal medication record (PMR), medication-related action plan (MAP), intervention and/or referral and documentation and follow-up.

A systematic process of collecting patient-specific information, assessing medication therapies to identify medication-related problems, developing a prioritized list of medication-related problems, and creating a plan to resolve them is termed as medication therapy review (MTR). A comprehensive record of the patient's medications (prescription and non prescription medications, herbal products, and other dietary supplements) is called as personal medication record (PMR). The medication-related action plan (MAP) is a patient-centric document containing a list of actions for the patient to use in tracking progress for self-management. Completion of the MAP is a collaborative effort between the patient and the pharmacist. Interventions may include collaborating with physicians or other health care professionals to resolve existing or potential medication-related problems or working with the patient directly. The intent of intervention and/or referral is to optimize medication use, enhance continuity of care, and encourage patients to avail themselves of health care services to prevent future adverse outcomes. Documentation is an essential element of the MTM service model. The pharmacist documents services and intervention(s) performed in a manner appropriate for evaluating patient progress.[3]

Diabetes mellitus (DM) is a group of metabolic disorders characterized by hyperglycemia. It is associated with abnormalities in carbohydrate, fat, and protein metabolism and results in chronic complications including micro-vascular, macro-vascular, and neuropathic disorders. Kerala is the diabetes capital of India with a prevalence of diabetes as high as 20% double the national average of 8%.[4,5] The American Diabetes Association (ADA) reports that average expenditures are 2.3 times higher for people diagnosed with diabetes compared to people without the disease.[6] The aim of the study is to assess the impact of medication therapy management on knowledge, attitude and practice among diabetic patients.

2. Methods

The prospective interventional study was carried out in KIMS Al Shifa Hospital which is a tertiary level hospital in Malappuram, Kerala for a duration of one year from 2015 February 15 to January 20th 2016. A systematic comprehensive literature search and qualitative analysis were completed for this study. A KAP questionnaire was designed and validated for the study based on the pilot study, answering 'YES/NO' which were administered to patients during hospital admission. KAP questionnaire was re-administered to the same patients after the conduction of medication therapy management programme. 104 type II diabetic patients from the general medicine inpatient department were selected for study. Patients were selected based on inclusion and exclusion criteria after obtaining ethics committee approval from our institution and consent from each patient. All inpatients of general medicine departments of the hospital of age above 20 and below 80 who were having type 2 diabetes mellitus as defined by International Diabetes Federation (IDF), and willing to participate were included in the study.

Patients admitted in ICU, patients with any history of mental illness and patients with severe cardiac, renal or hepatic impairment not related to diabetes were excluded.

Paired *t* test for testing the difference between Knowledge, Attitude and Practice among patients before and after intervention. SPSS 17.0 was used for assessing the perception of diabetic patients and ''*t*'' values which were statistically assessed at five percentage level ($p = 0.00 < 0.05$) with a degree of freedom 103.

Ethical committee approval number: IEC/ASH/2015/PD/11.

3. Results

The most prominent age group found in diabetic patients was 70–80 (30.8%) followed by 61–70 (27.9%). The gender wise distribution showed that males were more prone to the disease (58.7%, 61 patients) than females (41.3%, 43 patients). Considering the activity level of patients, 27.9% were doing light activities where as 25% were on moderate activities. Majority of patients (33.7%) had Primary school education followed by Secondary school education (28.8%). Most of the patients were on treatment with a single oral hypoglycemic agent, OHA (30.76%). Insulin was the most used treatment option (25.96%). 23.07% of patients were on combination therapy with insulin and OHA and 16.8% were on combination with two OHAs.

The assessment of KAP using a valid questionnaire revealed important factors leading to non-adherence in patients. Only 37.5% had knowledge about the causes and symptoms of diabetes. 36.5% knew the importance of proper foot care diabetes and only 26% had idea about all the possible complications of the disease. Even though 64.4% knew the names and indications of their medications and 48.1% knew the exact time and route of administration, only 7.7% were aware about the side effects that may be caused by the medications. Only very few (12.5%) had understanding about the significance of various laboratory tests in diabetes and the frequency at which they are to be done. The number of patients having positive attitude towards the disease management (30.8%) and having faith in current therapy (47.1%) were low in present study. However in our study more than half of the patients (64.4%) had positive attitude towards clinical pharmacy services. A large proportion of patients (77.9%) practiced irrational use of drugs including herbal products and OTC medicines which may affect the efficacy of anti-diabetic drugs. Only 40–50% of total patients adhered to diet control and physical exercise necessary for disease management. After the intervention, on re assessment the

Please cite this article in press as: Boban B, et al. Impact of medication therapy management on knowledge, attitude and practice among diabetic patients, *Clin Epidemiol Glob Health.* (2016), http://dx.doi.org/10.1016/j.cegh.2016.11.002