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Evolving role of clinical pharmacist in the management of diabetes mellitus

T. Arokiasamy, Dr. Rakesh, Dr. V. Palanivel, Dr.A.Arul, Dr. M. Kumaresan

HOD, JJT University, Jaipur.

Principal, Pachamuthu College of Pharmacy, Dharmapuri.

HOD., East Point of Medical Science, Bangalore.

Siva Hospital, Chennai.

*Corresponding Author: Prof.Srini Vasam

Email id: srinipharmacy@gmail.com

ABSTRACT

Diabetes mellitus is a metabolic disorder characterised by hyperglycaemia due to impaired insulin secretion with or without insulin resistance. Uncontrolled blood glucose in the long term will lead to micro vascular and macro vascular complications with increased morbidity and mortality and negatively affecting the quality of life. Comprehensive diabetes care is a complex task that takes the entire team of healthcare professionals including the pharmacist to work together to provide, multidisciplinary care for patients. Pharmacist's role has changed dramatically over the past three decades which has changed the concept of pharmacy from product oriented to a patient focused one with the concept of pharmaceutical care. The evolving role of clinical pharmacist in the management of diabetes mellitus - drug therapy, diabetes care and education has been described here. Optimizing the drug therapy for achieving the better therapeutic outcomes without causing drug related problems has been considered as the primary goal of therapy in the diabetes management. Well trained and readily accessible clinical pharmacists are the key healthcare professionals who can move closer towards achieving better medication therapy outcomes for the patients. Clinical pharmacist coordinates with the physician during drug therapy and applies his clinical expertise in identifying, resolving and preventing drug related problems by providing interventions which is of valuable aid in accurate, safe and cost effective use of drugs for the physicians. In addition, pharmacist also plays a very important role on diabetes care and education by screening patients at high risk for diabetes, monitoring diabetic treatment goals, assessing patient's health status and providing counseling for medication adherence which will help in optimizing the blood sugar level and enhancing the quality of life in patients with diabetes mellitus.

Keywords: Diabetes mellitus, Disease management, Clinical pharmacist, Patient care

INTRODUCTION

Diabetes mellitus is a chronic progressive metabolic disorder characterized by hyperglycaemia with disturbances of carbohydrate, fat and protein metabolism resulting from absolute (Type 1 DM) or relative (Type 2 DM) deficiency of insulin hormone or both. Uncontrolled blood sugar

or hyperglycaemia over a long period of time can lead to metabolic disturbances and virtually affects every system of the human body particularly the blood vessels and nerves leading to diabetes mellitus associated macro vascular & micro vascular complications, diabetic foot ulcer and recurrent infections. The macro vascular

complications includes cardiovascular diseases, peripheral vascular diseases and cerebrovascular diseases and the micro vascular complications such as nephropathy, retinopathy and neuropathy which can lead to increased chronic morbidity and mortality and adverse effect the quality of life of the patient. [1] The etiology of diabetes mellitus is multifactorial and includes genetic factors coupled with environmental factors such as associated with sedentary life style, lack of physical activity. Alcohol, cigarette smoking and over all bile style changes. Comprehensive diabetes care is an extremely complex lash that takes an entire team of healthcare professionals work together to provide optimal, multidisciplinary ere for patients. The essential element in the management of a diabetes mellitus includes therapeutic management. Self-care management. Patient adherence to the prescribed medication and life style modifications. All these are very essential and play a crucial role for the effective delivery of healthcare in achieving the goal of therapy or better therapeutic outcomes in the management of diabetes mellitus. Though the diabetic patients are managed by the physicians, clinical inertia and limited time with patients hamper efforts to meet treatment goals. So to have an effective delivery in achieving the goal of therapy, it requires a partnership between people and healthcare providers with multidisciplinary team. The team consisting of nurses, dieticians, pharmacist and physicians helps in achieving the target blood glucose levels, a reduction in diabetes complications and enhanced quality of life. But when it comes to pharmacist. many people think of their friendly, knowledgeable community medical specialist who dispenses medications and doles out advice to everyone in need of it. What many people may not realize is that this traditional role is expanding especially in the chronic disease continuum with these pharmacist (known as clinical pharmacist) taking on greater responsibilities including care of patients reviewing of patient drug therapy and helping them manage their conditions. So with the intimate understanding of how medications work and patient care, clinical pharmacist brings a unique and valuable perspective to diabetes care even as the population of patients with diabetes continues to grow. [2] The pharmacist role has been changed dramatically over the past three decades which revealed the growth of a new development that changed the concept of pharmacy from product oriented to a patient

focused one called clinical pharmacy which grew with the concept of pharmaceutical care. Thus pharmaceutical care is defined as 'responsible provision of drug therapy for the purpose of achieving definite outcomes which improves the patient quality of life. The ultimate goal of pharmaceutical care is to optimize patient's quality of life. [3]

DIABETES MELLITUS - DRUG THERAPY NIANAGENIENT

Optimizing the drug therapy is a term that has been used to .ascribe 'the right drug. to the right patient at the right time' in the absence of drug related problems. Optimizing the drug therapy can improve the care of patients with diabetes, reduce the number of hospitalization, economic impact of disease and enhance the quality of life.' Drug related problems refers to the mistakes which may arise at all stages of the medication process from prescription to follow up of treatment. Drug related problems are defined as 'problems in pharmacotherapy of the individual patient that actually or potentially interfere with desired health outcomes. This includes untreated indication, improper drug selection, sub therapeutic dosage. failure to receive medications. Overdose, adverse drug reactions, drug interactions and drug use without indication. With the rapid expansion in number of available drugs and their combinations, medication management has become increasingly complex and challenging. There is a parallel increase in occurrence of drug related problems in every prescription leading to failure in achieving therapeutic outcomes.' But because of heavy workload or busy work schedule, stress and fatigue, identifying drug related problems becomes overlooked. Various studies has shown that drug related problems can occur in patients with diabetes mellitus as they consume multiple medication for long term therapy and the fact that they arc more likely to have multiple disease states and chronic conditions.." Drug related problems are responsible for up to one third of the hospital admission, increasing the morbidity and mortality as well as the healthcare costs. A team based approach consisting of physicians and clinical pharmacist along with other healthcare professionals is the key and has the potential to meet the complex needs of many diabetic patients including the patient drug therapy. He designs a comprehensive medication

management services that allows the pharmacist to play a more active role in helping to manage the patients with diabetes. It is a patient centered service based on a comprehensive evaluation of all patient medications and their impact on the patients multiple medical conditions. He cooperates with the patients and other healthcare professionals in designing, assessing, implementing and monitoring therapeutic plans that assist patients in achieving positive clinical outcomes. When these services are provided, the patient receives a standard patient care focused on identifying, resolving, preventing drug related problems [4].

So a clinical pharmacist with excellent and dynamic background on disease states and therapeutic knowledge on drugs including the pharmacokinetic and pharmacodynamics characteristic of medications such as dosing, interactions, indications, side effects and alternatives based on the patient's situation play a crucial role in the pharmacotherapeutic management. His role has become inevitable in monitoring the drug therapy. The contribution of clinical pharmacist in identifying, resolving and preventing drug related problems by providing interventions is of valuable information for physicians, who may then, if they judge it convenient, introduce changes in the drug therapy that will enhance the patient medication safety, optimize the drug therapy and reduces healthcare costs. Researchers have demonstrated that interventions by clinical pharmacist have had led to positive impact on patient outcomes. This shining paradigm also highlights the value of clinical pharmacist as a trustable, highly accessible, well trained consultant resource person for providing drug information to physicians and other healthcare providers in safe, appropriate, cost-effective we of drugs." [5]

DIABETES CARE AND EDUCATION

Many controlled trails have consistently reported about the successful effort of pharmacist in optimizing the glycaemic control in various diabetic subpopulations. Most of the trials came out with a suggestion of developing a pharmacist-led diabetes clinic as a way to improve patient adherence, glycaemic control, prevent adverse drug reactions and diabetes complications with enhanced patient satisfaction and reduced healthcare expenditure. As a vital members of healthcare

team, pharmacist has a significant impact on diabetes care and education by screening patients at high risk for diabetes, setting and monitoring diabetic treatment goals, assessing patient's health status, home glucose meter training. Performed physical assessment of patient's feet, skin. Blood pressure and weight, blood pressure & lipid management education and adherence to standards of care.' In fact he will be an easy access to patients with diabetes, able to answer doubts and queries about the disease states and offer guidance on the self-care management, proper use of medications and monitoring outcomes. There is a growing body of literature supporting the role of pharmacist in diabetes care, as pharmacist can provide "continuity of care" by implementing a plan consisting of patient care progress follow ups between physician visits, utilizing his clinical expertise to monitor and manage diabetes medication plans, and educating patients on disease, lifestyle modifications and adherence issues until the goals are met. Such plan helps in achieving sustained improvement in glycemic control, decreases the need for hospitalization and emergency department and clinical visits and significantly decreases the healthcare expenditure. The monitoring of the patient adherence should not be just restricted to medication therapies. It should also include blood glucose monitoring, dietary restrictions and life style recommendations. Clinical pharmacist assesses the adherence by patient interview and review of prescription filling practices. He also advices the patient to use such tools as simplified therapy dosing schedules, minimization of unnecessary therapies and the use of pill boxes [6]

Patient education by the clinical pharmacist is one of the most important and prominent role in the management of diabetes mellitus. It should be provided in three stages. The initial stage occurs immediately after the patient is diagnosed an. should help the patient address immediate concerns and accept the diagnosis. The second stage provides in depth information, focusing on problems identified in the patient's assessment and needs that might be anticipated. The third stage provides continuing education to reinforce concepts. boost and maintain motivations and empower self-care management to patients.

Medication adherence is the degree to which patient take medications as by their physician or registered medical health practitioner. Poor

adherence to medications increases overall healthcare costs as patients become sicker faster and require more costly interventions and have negative impact on their quality of life. Patients don't adhere to medication regimens for a variety of reasons, including side effects, timing, not understanding the benefits of medication and don't want to take 'so many pills'. Non adherence to anti-diabetic medication in patients with diabetes medications can lead to sub optimal control of blood sugar, recurrent infections, early development of diabetes complications and poor quality of life." One of the best way to improve medication adherence is patient medication counseling. It is defined as providing medication related information orally or in written form to the patients or their caregivers/bystanders/representatives, on topics like direction of use, dosage, administration, precautions, storage. Side effects of drugs and non-pharmacological measures such as weight loss, exercise, dietary restrictions and lifestyle modifications. Pharmacist need to counsel the diabetic patient regarding the use and administration of drugs and the importance of medication in the management of the disease which will helps in decreasing the non-compliance and improves the quality of life outcomes in diabetes.

Attention to preventive measures is of utmost importance in the realm of diabetes management.

Clinical pharmacist visit or assessment should include a focus on prevention, including making medication therapy modifications to assist patients in achieving target blood pressure and lipid levels, as well as laboratory monitoring associated with these medication adjustments. Additionally he should ensure that patients foot exams, eye exams, kidney and heart check-up are done periodically or annually and vaccinations arc up to date. Finally he should provide advice for increasing the physical activity. Cessation of smoking & tobacco chewing and abstinence from alcohol.

CONCLUSION

Diabetes mellitus is a chronic disease that requires a comprehensive management including pharmacological and non-pharmacological measures for achieving optimal glycemic control and better therapeutic outcomes which will enhance the quality of life. The presence of pharmacist as a member of healthcare team and his contribution by providing interventions is very valuable to physician during drug therapy which helps to improve the quality of care and decreases the healthcare costs. Patient education and counseling by the pharmacist for improving the medication adherence will further strengthen the remarkable role of pharmacist in the management of diabetes mellitus.

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