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Original Research Article

The Role of the Clinical Pharmacist in Multidisciplinary Heart Failure Clinic at Tertiary Care Hospital

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Background: **Chronic heart failure (CHF) is a common cardiovascular disease with high morbidity and mortality. The prevalence of CHF is about 1% to 2% of the general population in the Western countries. It is predominant in the elderly population. One out of 10 people of 85 years of age or over suffers from CHF. A multidisciplinary programme was developed to improve the CHF management. The programme involved heart failure consultant, clinical pharmacist, nurse clinician and dietician. The therapeutics outcomes in heart failure (HF) can be improved by a multidisciplinary team. Clinical pharmacists provide valuable information for the patients and for the HF management team.** ***Objective:*** **To describe the clinical pharmacist interventions in heart failure clinic.** ***Methods:*** **A descriptive study, conducted from November 2010 to December 2011 in the heart failure clinic, at the King Fahad Medical City (KFMC), Riyadh, KSA. All the clinical pharmacist interventions that have been done for the patients as HF management were documented.** ***Results:*** **A total number of 337 patients with HF were presented in the HF clinic. 211 out of the total HF patients were seen by clinical pharmacists. The number of interventions done by the pharmacists was 419 in total. The clinical pharmacist interventions involved 68 of adding drug, 76 of dose adjustment and 52 discontinuing drug. Moreover, the clinical pharmacist provided 211 counseling sessions for drugs, smoking cessation and diet.** ***Conclusions:*** **Clinical pharmacists play a vital role in heart failure clinics. The role ranges from patient education and support as well as the involvement in patient treatment plan.**

Keywords: Clinical Pharmacist, Heart Failure Clinic, Tertiary Care Hospital, Saudi Arabia.

INTRODUCTION

Chronic heart failure (CHF) is a common clinical condition with high morbidity and mortality. The five-year survival of patients with chronic heart failure is worse than many malignant conditions and the quality of life of patients with HF is worse than with angina, diabetes, chronic obstructive airways disease and many other gastrointestinal diseases [(1)]. The prevalence of CHF is about 1% to 2% of the general population in the Western countries and at least 10% of persons aged 85 years or over [(2,3)]. The appropriate management of patients diagnosed with CHF improves symptoms**,** reduces hospitalisation rates and prolongs survival [(4)].

In Saudi Arabia, the rapid improvement in the socio-economic conditions has been accompanied by lifestyle changes that has contributed to higher rates of all cardiovascular diseases including heart failure [(5).] The chronic heart failure treatment plan involves a multiple drug therapy, which can lead to difficulties in patients' compliance with their medications. However, clinical pharmacist can play a key role in improving patients' safety and quality of life.

Nowadays, clinical pharmacists are playing a major role in the management plan of different therapeutic areas such as heart failure, anticoagulation, lipid, hepatitis, pain management, medication management, and renal transplant [(6)]. The results from many studies evaluating the effect of an intensive medication counseling program by a pharmacist have shown improved compliance, functional capacity and reduction of patients' symptoms [(7)]. Murray et al found that pharmacist intervention in patients with cardiovascular disease medications decreases the risk of adverse drug events and medication errors [(8)].

This study aims to assess the clinical pharmacist role in the management of CHF patients who were attending the HF clinic in KFMC, therefore, we developed a multidisciplinary programme that involved a heart failure consultant, clinical pharmacist, nurse clinician and dietician. In this study, we explored the role played by a clinical pharmacist in heart failure clinic.

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METHODOLOGY

Study design

A cohort prospective study, conducted from November 2010 to December 2011 in the heart failure clinic, at the King Fahad Medical City, Riyadh, KSA. All the clinical pharmacist interventions in the CHF patients management plan were recorded and documented during the defined study period.

Study subjects

All adult males and females with chronic heart failure disease who were attending the HF clinic for new diagnosis, follow-up and who were referred to the HF clinic from other departments or hospitals in KSA.

Study procedure

Patients who were eligible for this study were seen by a clinical pharmacist either before or after examination by the physician. The clinical pharmacist reviewed the patient's medical history, checked the laboratory results, assessed the current medications, made some changes in medication plan and offered counseling for the patient about their medications including (indication, route of administration, frequency, side effects and indicated the importance of the medication for her\his condition),

In addition, the clinical pharmacist contributed in providing patients with an appropriate counseling on lifestyle changes, identified drug-related problems, initiated treatment when indicated, scheduled appropriate follow-up, monitored patients INR on a regular basis, managed adverse drug reactions and drug interactions as well as order, monitoring laboratory tests when appropriate. After that, the clinical pharmacist discussed all the changes he/she made in the treatment plan with the heart failure consultant to draw the final decision on the therapeutic plan.

Statistical analysis

Data was analyzed using SPSS software version 17, descriptive statistics and percentages were used.

RESULTS

During the study period, a total number of 337 patients were seen in the heart failure clinic, 211 of them were seen by clinical pharmacists with an average time of 30 minutes for each patient. The number of interventions done was 419 (table I); consisting of adding drug (68), dose adjustment (76) and discontinuing drug (52) (Figure I).

Of the 68 adding drugs, 8.8 % (6) were beta-blockers (B-B), 4.4% (3) Angiotensin-converting enzyme inhibitors (ACEIs), 2.9% (2) Angiotensin receptor blocker (ARBs), 19.1% (13) Spironolactone, 4.4% (3) Furosemide, and the same percentage was recorded for digoxin and Isosorbide dinitrate, 16.2% (11) statin, 5.8% (4) hydralazine, 1.4% (1) Nitroglycerin patch, and 27.9% (19) for others including oral hypoglycemic agent, supplement, gastrointestinal protection, laxative, antiplatelet and pain killer.

Of the 76 recorded for dose adjustment, 17 % was for dose adjustment of ARBs (8 increasing and 5 decreasing dose), 3,9 % adjustment for B-B (1 increasing while 2 decreasing), 13.1% adjustment of furosemide (7 increasing and 3 decreasing furosemide dose), 9,2% (7) decreasing digoxin dose, 11.8% (9) warfarin adjustment, 19.7 % spironolactone dose adjustment (9 increasing and 6 decreasing spironolactone dose) and 23 dose adjustments for other drugs, (Table II). Discontinuing of drugs was either due to the development of side effects or there was no indication. Of the 52 recorded for discontinuing drug, 7.6 % was discontinued for Isosorbide dinitrate, the same percentage for Aspirin, Clopidogrel and Spironolactone, 15.4 % for digoxin, 3.8% ACEIs and 50 % for others including amiodaron, domperidon, amlodipine, non-steroidal anti-inflammatory drugs, buscopan and metformin.

Also, for these patients, 6, 9 and 4 stat labs were ordered respectively for dioxin level, Hematological Labe (INR) and electrolytes (K) to adjust the dose of digoxin, warfarin and Spironolactone. Two patients came with gynecomastia secondary to using Spironolactone and another two patients with dry cough and one patient with nose bleeding secondary to aspirin.

DISCUSSION

Our findings show that 419 interventions were done for 211 patients by the clinical pharmacist. The interventions vary between adding or omitting drug, adjusting dose and ordering lab tests for patients' follow-up. Moreover, the clinical pharmacist provided the patients with 223 counseling sessions included, but not limited to, their medications, diet and smoking cessation.

These results reflect the clinical pharmacist contribution in the HF patients therapeutic plan which disclaim the old perception that limits the role of the pharmacist as one who can only help in collecting the medications. Interventions done by clinical pharmacists in hospital settings assist the physicians in choosing the appropriate drug regimen and dosages while pharmacist in community pharmacy are more concerned with improving patient knowledge and compliance [(7)].

Outpatient clinics for chronic diseases is a multidisciplinary team; involve many health care professionals which all concern to provide all the available care to the patients. Clinical pharmacists play an important role in this team. Many studies have shown and defined the role of pharmacists involved in ambulatory care clinic to optimizing medication use, improving care and reducing costs. A randomized trial done by Carter BL et al, to evaluate physician/pharmacist collaboration in improving patient blood pressure control.

The results showed a significant reduction in blood pressure and improvement in blood pressure control [(9)]. Another study done by Elaine Chiquette et al. presented the important role of the clinical pharmacist in reducing the bleeding and thromboembolic event rates between patients in the anticoagulant clinic Also, the study concluded that clinical pharmacist interventions were responsible for reducing hospitalizations, emergency department visits and improved monitoring effect [(10)]. Our study showed that the clinical pharmacist interventions in HF clinic have a significant effect on the patients' outcomes.

LIMITATION

This is an observational descriptive study and the end point is the number and type of interventions done by the clinical pharmacist. There was neither follow-up of the patients nor measurement for the effect of these interventions on morbidity or mortality of the patients.

Table I. interventions done per month

Month\2011	No. of patients	Counselling (For drugs, Smoking Cessation & Diet)	Total no. of intervention per month
January	21	20	41
February	29	27	35
March	24	18	23
April	12	11	17
May	16	38	68
June	17	17	40
July	14	14	21
August	12	12	27
September	17	17	27
October	12	12	14
November	20	20	51
December	17	17	55
Total	211	223	419

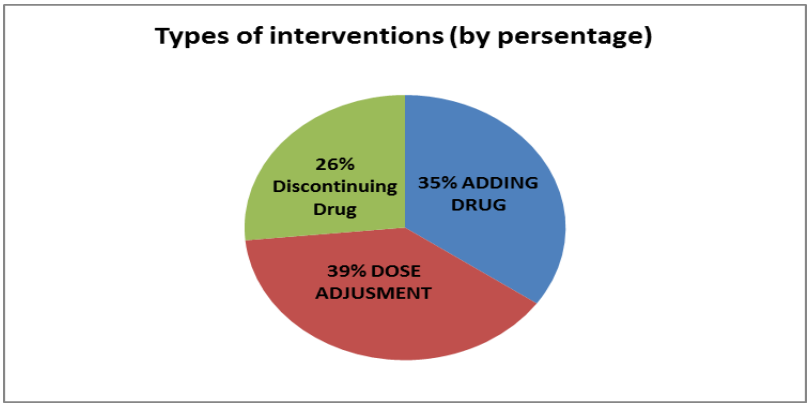

Figure I. Types of interventions

Table II. Types of interventions

Drugs	Adding (%)	Adjustment (%)	Discontinue (%)
B-B	6 (8.8)	1 inc., 2 dec. (3.9)	…….
ACEIs	3 (4.4)	8 inc., 5 dec. (17)	2 (3.8)
ARBs	2 (2.9)	…….	…….
Spironolactone	13 (19.1)	9 inc., 6 dec. (19.7)	4 (7.6)
Furosemide	3 (4.4)	7 inc., 3 dec. (13.1)	…….
Digoxin	3 (4.4)	7 inc. (9.2)	8 (15.4)
Isosorbide dinitrate	3 (4.4)	…….	4 (7.6)
Statin	11 (16.2)	…….	…….
Hydralazine	4 (5.8)	…….	…….
Nitroglycerin patch	1 (1.4)	…….	…….
Warfarin	…….	9 (11.8)	…….
Aspirin	…….	…….	4 (7.6)
Clopidogrel	…….	…….	4 (7.6)
Others (oral hypoglycaemic agent, insulin, GI protection, laxative & pain killer)	19 (27.9)	31 (23.6)	26 (50)

Inc.= increase, dec.= decrease

Further research is needed to address the amplitude and the impact of the supportive roles of the clinical pharmacists in the treatment outcomes of patients with heart failure as well as on the morbidity and mortality.

CONCLUSION

Clinical pharmacists interventions play a vital role in the heart failure therapeutic and management plan. Their contributions range from supporting, educating the patients, and providing advice for the physician in the treatment strategies.

COMPETING INTERESTS

The authors declare that they have no competing interests.

REFERENCES

1. Kamlesh Khuntia, et al. Heart failure in primary care: Qualitative study of current management and perceived obstacles to evidence-based diagnosis and management by general practitioners, The European Journal of Heart Failure 4 (2002) 771–777.
2. Mosterd A, Hoes AW: Clinical epidemiology of heart failure. Heart 2007, 93:1137-1146
3. Mosterd A, et al. Prevalence of heart failure and left ventricular dysfunction in the general population; The Rotterdam Study. Eur Heart J 1999, 20:447-455.
4. Flather MD, et al. Long-term ACE-inhibitor therapy in patients with heart failure or left-ventricular dysfunction: a systematic overview of data from individual patients. ACE-Inhibitor Myocardial Infarction Collaborative Group. Lancet 2000;355:1575 –81.
5. A.Z. Taha and H. Bella, Heart disease risk factors: prevalence and knowledge in a primary care setting, Saudi Arabia, Eastern Mediterranean Health Journal, Volume 4, Issue 2, 1998, Page 293-300 (who)
6. Wendy A. Gattis et al, Reduction in Heart Failure Events by the Addition of a Clinical Pharmacist to the Heart Failure Management Team, Arch Intern Med. 1999;159:1939-1945 (**)
7. T. Jaarsma, Health care professionals in a heart failure team. The European Journal of Heart Failure 7 (2005) 343–349
8. Murray Michael D.; Mary E. Ritchey; Jingwei Wu; Wanzhu Tu. Effect of a Pharmacist on Adverse Drug Events and Medication Errors in Outpatients With Cardiovascular Disease Arch Intern Med. 2009;169(8):757
9. William Linn, et al. Establishing and Evaluating Clinical Pharmacy Services in Primary Care, Pharmacotherapy 1994;14(6): 743-758.
10. Elaine Chiquette, et al. Comparison of an Anticoagulation Clinic With Usual Medical Care, Arch Intern Med. 1998;158:1641-1647.