INTRODUCTION

Pharmacists have extensive clinical knowledge and expertise in the use of medications, and are one of the most approachable of all health care professionals. This makes them uniquely positioned in the health care system to help patients optimize appropriate use of medication, reduce medication related problems and improve health outcomes through the delivery of pharmacist-provided patient care services, including medication therapy management (MTM), health promotion and education, and disease prevention and mitigation (American pharmacist association, 2008).

MATERIALS AND METHODS

A Prospective Observational cohort study conducted in Outpatient department, government general hospital, Guntur,
Andhra Pradesh. It was conducted in a period of 6 months i.e., between October 2017 to March 2018. Our study population is about 60 patients (Diabetes with Hypertension). Before the commencement of the study the ethical committee permit has been taken. Annexure that were used in our study includes data collection forms, alert cards, patient information leaflets, KAP questionnaires. Patients receiving medications from General Medicine department diagnosed with Diabetes with hypertension were included. Patients from Paediatrics, Gynaecology, Psychiatry, Orthopaedics, Cardiology and age below 12 years and age above 70 years were excluded. Patients were recruited in the study based on inclusion criteria. Data was collected regarding their demographics, personal history, social history, past medical and medication history, laboratory investigations and current medications during the initial follow-up. Questionnaires were also given to the patients. Regular follow-ups had been conducted and their laboratory data was recorded. During follow-ups patients were monitored for dispensing errors, prescription errors, dose errors, adverse drug reactions, drug interactions. Counseling had been provided to the patients regarding their medications, diseases, life style modifications. After continuous follow-ups for 3 months with an interval of 20 days between each follow-up we observed for improvement in knowledge regarding disease and drugs, improvement in medication adherence, improvement in their therapeutic outcomes.

RESULTS

Table 1. Assessment of knowledge, attitude and practice

<table>
<thead>
<tr>
<th>Disease</th>
<th>Initial follow up</th>
<th>Final follow up</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes with hypertension</td>
<td>55.45±6.41</td>
<td>35.85±1.92</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 2. Assessment of Therapeutic Outcomes for Diabetes with Hypertension Patients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Initial follow up</th>
<th>Final follow up</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting Blood Sugar</td>
<td>175.88±39.15</td>
<td>161.83±23.95</td>
<td>0.000</td>
</tr>
<tr>
<td>Random Blood Sugar</td>
<td>284.61±73.31</td>
<td>226.15±44.86</td>
<td>0.000</td>
</tr>
<tr>
<td>Systolic BP</td>
<td>152.16±15.95</td>
<td>147.5±12.57</td>
<td>0.03</td>
</tr>
<tr>
<td>Diastolic BP</td>
<td>94.16±7.65</td>
<td>92.16±6.13</td>
<td>0.057</td>
</tr>
</tbody>
</table>

DISCUSSION

An observational study on ‘Prominence of Clinical Pharmacist in Enhancing Therapeutic Outcomes of Diabetes with Hypertension in Low Socio-Economic Population’. The patients were recruited based on inclusion and exclusion criteria and had follow ups for 6 months. In this study, pharmacists counsel regarding the prescribed medicines, medication adherence, life style modifications, at initial follow-ups and results were being observed for 5 follow ups. This study is also intended to evaluate the impact of pharmacist in improving knowledge, attitude, practice and medication compliance and therapeutic outcomes. Ethical committee permission was taken before commencement of the study. All the statistical analysis was calculated by using SPSS software. Pharmacotherapeutic outcomes of subjects were monitored during the study and were compared from the initial to final follow up which coincides with the study conducted by Sanni et al., study on Role of pharmacist counselling in pharmacotherapy quality improvement (Yaldasani et al., 2016). In patients with diabetes and hypertension Fasting Blood Sugar was decreased from 175.88 to 161.83 with a standard deviation of 39.15 and 23.95 respectively with P value of 0.000 at 95% confidence interval and Random Blood Sugar decreased from 284.61 to 226.15 with a standard deviation of 73.31 and 44.86 respectively with P value of 0.000 at 95% confidence interval and their Systolic BP was decreased from 152.16 to 147.5 with a standard deviation of 15.95 and 12.57 respectively with P value of 0.03 at 95% confidence interval and Diastolic BP was decreased from 94.16 to 92.16 with a standard deviation of 7.65 and 6.13 respectively with P value of 0.057 at 95% confidence interval which coincides with Marie smith, a study on Pharmacists’ Role in Improving Diabetes Medication Management (Smith, 2009), and with Pranay Wal et al., study on Pharmacist involvement in the patient care improves outcome in hypertension patients (Pranay Wal et al., 2013). As the study is conducted in the government sector, most of the patients do not have adherence to medications, patients were improved in their adherence when compared to the initial follow up to final follow up by educating and counselling by the pharmacist. This coincides with Francesca Elaine Soto Santiago and Kyle Melincon, a study on Impact of Clinical Pharmacist Intervention on Medication Adherence and Disease related Knowledge among Patients with Low Health Literacy in Puerto Rico (Francesca Elaine Soto Santiago and Kyle Melincon, 2015). KAP
questionnaires were used to assess the patient’s knowledge regarding the disease, medication and lifestyle adaptations they have to follow to control their morbid conditions and improve their quality of life. This study coincides with Mounica Bollu et al., a study on Study of Knowledge, Attitude, and Practice of General Population of Guntur Toward Silent Killer Diseases: Hypertension And Diabetes (Mounica et al., 2015). Individual questionnaires were prepared for Diabetes, Hypertension. Results were compared between baseline and final follow up by assessing the scores. This is similar to the study conducted by Mallesh et al, on Evaluation of the Clinical Pharmacist Role in a Health Care Team; a Comparative Approach (Mallesh et al., 2016). For Hypertension KAP questionnaire consists of 13 questions. Responses from the patients were taken and significance was calculated. Significance is calculated at the baseline and final follow up and P value is 0.000. This study coincides with Shakti Shrestha, et al., study on Knowledge, Attitude and Practice on Hypertension among Antihypertensive Medication Users (Shrestha et al., 2016). For Diabetes KAP questionnaire consists of 27 questions. Responses from the patients for questions were taken and significance was calculated. Significance is calculated at the baseline and final follow up and P value is 0.000. This is similar to the study Mounica Bollu, Study of Knowledge, Attitude, and Practice Of General Population Of Guntur Toward Silent Killer Diseases: Hypertension And Diabetes (Mounica et al., 2015).

**Conclusion**

The current study shows that the majority of the patients had a poor knowledge about the diseases and self-medications and decreased therapeutic outcomes. Firstly the clinical pharmacist should educate the patients regarding the diseases and medications. Secondly pharmacist should check for medication adherence thereby enhanced therapeutic outcomes can be observed. Thirdly identifying the drug related problems. These three measures would definitely increase the therapeutic outcomes and helps in increasing the quality of life of the patient. Finally by regular follow-ups Adverse Drug Reactions, Drug Interactions, Dispensing Errors and Prescription Errors can be monitored. So, clinical pharmacist services are essential for the better patient care.

**Acknowledgement**

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**REFERENCES**


