An Approach Towards Medication Therapy Management (MTM): A Patient Case

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Abstract

Medication therapy management (MTM) has been an area of focus in pharmacy for the past decade, yet there is still no universal method to provide MTM services in practice. At Western University of Health Sciences, pharmacy students, under the guidance of pharmacists, have the opportunity to practice MTM in an outpatient setting. Here, we report Western University's approach towards MTM through a patient case, the outcomes of our intervention, limitations, and the implications for future practice.

The Medication Therapy Management (MTM) program, established at Western University of Health Sciences, is a collaborative effort between the university and the Inland Empire Health Plan (IEHP) with the goal of optimizing the patient's therapeutic outcomes, enhancing the patient's care, and reducing unnecessary health expenditures. MTM services are delivered primarily through the phone and, occasionally, through face-to-face interviews, which is the preferred method. Effective communication by the pharmacist is necessary to obtain accurate information about the patient's health and home medication use. Reviewing prescription fill date patterns through insurance records is also used to assess patient compliance to medications. If refill dates are consistent with the quantity of medication dispensed, it is evident that patients are taking their medications as directed. However, if patients did not fill their medications on time, they are asked if they have any issues with the prescription. Common reasons for non-adherence include high drug costs, patient apathy towards their health, drug side effects, and inconvenient dosing regimen. Such issues were encountered in an MTM session at Western University pharmacy, where additional medications were prescribed to treat a side effect from another drug the patient was on. Through our MTM service, we were able to work as an interdisciplinary team and recommend alternative therapies to eliminate the drug and ultimately the side effect it caused, thus demonstrating the potential benefit of this program.

Patient Case

The patient is a 5'11", 42-year-old unemployed male, stated weight 200 lbs. His medical history includes: HTN, GERD, DM2, CKD, dialysis therapy, peripheral neuropathy, peripheral edema, hyperlipidemia, depression, gout, anxiety and hospitalization twice in the past four months due to uncontrolled diabetes. The patient's initial medication list is provided on Table 1.

The patient's primary complaint was vomiting in the morning and occasionally throughout the day; making it difficult to retain meals and possibly medication. He also complained of insomnia, leg pain, including swelling, and continuous toe cramping. He rated his pain level 6 to 7 out of 10. The pain and swelling of his legs contributed to his sedentary lifestyle and depression. When asked about his average blood pressure and blood glucose readings, he did not know his levels. He did not own a blood pressure or glucose monitor to perform self-monitoring at home. He stated he was compliant with his medication, but his simvastatin was not filled over the last three months. The patient's most recent labs from May 2014 showed a hgbA1C of 15.5%, fasting plasma glucose 145 mg/dL, total cholesterol 335 mg/dL, triglycerides 200 mg/dL, LDL-c 255 mg/dL, urate 9.5 mg/dL and serum creatinine 2.74 mg/dL.

After the MTM session, the patient's medication therapy and problem list were assessed. The recommendations and rationale for changes are provided on Table 2. A SOAP note was faxed to his physician, which included the recommended revised medication regimen in Table 1.

Physician Response

The recommendations were eventually accepted after multiple follow-up attempts by the pharmacy. The physician faxed the pharmacy back two weeks after the initial request, accepting all the medication changes. However, the actual prescriptions were not called into the patient's pharmacy until a month later. This was due to a misunderstanding by the physician's office that the pharmacy's MTM service can make medication changes on its own. After clarifying that the physician had to call in the changes, the patient's new medications were available.

Follow-up

The patient was contacted two months after the medication changes. The patient's insomnia improved and his pain was less frequent, allowing him to increase his physical activity. The patient's peripheral edema resolved and his furosemide was discontinued. There was no change in his nausea and vomiting, but this could be attributed to his dialysis. When asked about his blood sugar and blood pressure, the patient was still uncertain of his readings. He still did not own a blood pressure machine or test his blood sugar regularly. The physician's office was contacted for updated labs, but none were available. Labs were ordered over a month ago; however, the patient did not complete them. After further follow-up with the patient, he stated he was forgetful and would obtain the labs when he had time.

Limitations

This patient case illustrates the impact that pharmacists can have on reducing medication burden and the benefits of collaboration among healthcare providers. However, many challenges continue to exist for MTM services, especially in an outpatient setting. The time to implement the medication recommendations required extensive follow-up by the pharmacy to ensure the physician received the recommendations and the prescriptions were actually written for the patient. Moreover, it was very difficult to obtain updated labs to assess the full effect of the MTM service. Electronic health records help alleviate misunderstandings in hospitals and closed health network systems such as the VA and Kaiser, but this is still a significant barrier for many community pharmacies. The passing of SB493 will help reduce health miscommunications since pharmacists can have prescriptive authority and directly implement their recommendations. However, the most significant obstacle to providing a successful MTM service is the patient. Though providers can make many recommendations, patients must also take an active role in their own health care.

Conclusion

Medication therapy management is an opportunity for pharmacists to provide a direct patient care service, which utilizes their extensive knowledge about medication, including: adverse drug event management, pharmacokinetics, and pharmacology. Despite the evident challenges

Table 1: Medication Regimen

Indication	Initial Medication Regimen	Pharmacist Recommended Medication Changes
Hypertension	clonidine 0.1 mg po QID amlodipine 10 mg po daily hydralazine 100 mg po BID	Switched to: lisinopril 40 mg po daily chlorthalidone 50 mg po daily
Peripheral Edema	furosemide 40 mg po QAM	No change
Neuropathic Pain	gabapentin 300 mg po TID	Switched to: duloxetine 60 mg po daily
Depression	trazodone 50 mg po daily	
Anxiety	lorazepam 1 mg po prn	
Diabetes Mellitus type II	insulin glargine 50 units QAM	No change
Hyperlipidemia	simvastatin 20 mg po QHS	Switched to: atorvastatin 40 mg po QHS
GERD	pantoprazole 40 mg po QAM	No change
Nausea, Diabetic Gastroparesis	metoclopramide 10 mg po BID	No change
Gout/ Hyperuricemia	allopurinol 100 mg po daily	Increased: allopurinol 100 mg po BID

this case presents, there are many opportunities that have the potential to foster a more efficient pharmacy service. Further research is needed to promote greater patient adherence and collaborative communication amongst healthcare providers.

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Table 2: Problem List & Recommendations

Problem List	Rcommendations & Rationale
Peripheral Edema & HTN management	• Discontinue clonidine, hydralazine, and amlodipine since peripheral edema is a well-known adverse effect.[1] If edema improves, discontinue furosemide. • Start ACE-I and thiazide diuretic per JNC VIII for HTN management.[2] • Sodium restriction to 2.3 g/day and increase fruit/vegetable consumption per DASH diet3. • Obtain blood pressure monitor to enhance patient awareness of BP control.
DM2	• Test blood sugar six times a day over several days to assess glucose patterns and adjust insulin therapy as needed. • Reinforced insulin injection technique with patient. • Recommended yearly foot and eye exam and the following vaccinations: influenza, HBV, and pneumococcal vaccine. • Recheck A1C in four months, goal A1C < 7% per ADA3.
Hyperlipidemia	• Switch patient to a high intensity statin since patient's LDL > 190 mg/dL and age < 75 years old per ACC/AHA 2013 lipid guideline.[6] • Atorvastatin was recommended because it is less lipophilic than simvastatin and may be less likely to cause CNS effects, such as cognitive dysfunction.[4] Atorvastatin is also cheaper compared to the other high intensity statin, rosuvastatin. • Lipid panel and LFTs in three months to monitor for efficacy and adverse effects. • Reinforced importance of non-weight bearing exercise for at least 30 minutes daily, as tolerated by patient.
Pain Management	• Start duloxetine since it is indicated for peripheral neuropathy, depression and anxiety. Discontinue trazodone, lorazepam and gabapentin. • Starting duloxetine will reduce the number of medications the patient is taking, potentially leading to improved medication adherence.[7]
Gout	• Recommended low purine diet to help further reduce patient's serum uric acid level. • Increase allopurinol dose in weekly increments to a recommended dose of 200-300 mg daily.[1]
Nausea	• Instructed the patient to take pantoprazole 30 minutes before breakfast and take all his other medications after food. • Advised patient to eat smaller meals, preferably bland foods.