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Overcoming barriers to monitoring patients taking second-generation antipsychotics

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Abstract

Introduction: Patients taking second-generation antipsychotics (SGAs) are at increased risk of developing metabolic syndrome because of the side effect profiles of these medications. A medication use evaluation (MUE) was conducted and showed that baseline monitoring rates of metabolic parameters in patients taking SGAs are low. A pharmacist-run metabolic syndrome monitoring clinic (MSMC) is available to mental health (MH) outpatients; however, the clinic is underused by providers. The purpose of this project was to increase baseline metabolic syndrome monitoring rates in patients taking SGAs by implementing interventions to overcome barriers to monitoring and to accessing the MSMC.

Methods: Appropriate tools to improve monitoring were obtained, and an electronic consult for the MSMC was created. A presentation and pamphlet were developed to improve awareness. Information about free patient transportation was obtained and distributed. Efficacy was assessed by evaluating patient referrals to the clinic before and after intervention, comparing baseline monitoring rates after implementation with the MUE data, and administering an anonymous survey to outpatient MH providers.

Results: There was a 37.5% increase in overall referral rates to the MSMC after intervention, but only 51.5% of patients attended appointments as scheduled. Monitoring of vital signs increased, but monitoring of laboratory parameters decreased. A total of 60% (9 of 15) of providers completed a survey, of which one third indicated they still forget to refer patients to the MSMC.

Discussion: Overall, baseline metabolic monitoring rates remained low despite implementing several interventions. Patient and provider outreach is crucial for initiating and maintaining a successful metabolic monitoring system for patients taking SGAs.

Keywords: second-generation antipsychotics, metabolic syndrome, pharmacist, monitoring rates, metabolic syndrome monitoring clinic

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Introduction

Cardiovascular mortality is of high concern in patients with psychiatric disorders, because of several factors, including lifestyle, genetic predisposition, and medication side effects.[1] These patients may be more likely to smoke, eat unhealthy foods, and lead a sedentary lifestyle.[2-5] Furthermore, poor help-seeking behavior, financial problems, and poor motivation limit medical care access.[6,7] Their life expectancy may be up to 25 to 30 years shorter than that of the general population.[8] Second-generation antipsychotics (SGAs) are a first-line treatment for

schizophrenia[9,10] and adjunctive treatment for conditions such as bipolar affective disorder[11] and major depressive disorder (MDD)[12]; however, many SGAs are associated with glucose intolerance, weight gain, and hyperlipidemia.[13] Clozapine and olanzapine are most likely to cause these metabolic disturbances, although risk is present with other agents.[13]

Metabolic syndrome is a cluster of risk factors that increase the chance for developing cardiovascular disease. These include: waist circumference (WC) $\geq$40 in (men) or $\geq$35 in (women), triglycerides $\geq$150 mg/dL, high-density lipoprotein <40 mg/dL (men) and < 50 mg/dL (women), blood pressure (BP) $\geq$135/85 mm Hg, and fasting blood glucose (FBG) $\geq$100 mg/dL.[14] Because of the propensity for SGAs to worsen many of these parameters, the American Diabetes Association, American Psychiatric Association, American Association of Clinical Endocrinologists, and North American Association for the Study of Obesity[13] recommend obtaining the following monitoring parameters for patients taking SGAs: WC and personal and family history of cardiovascular disease at baseline and annually; weight or body mass index at baseline, at 4, 8, and 12 weeks after initiation, and quarterly thereafter; BP and FBG at baseline, 12 weeks after initiation, and annually; and a fasting lipid panel (FLP) at baseline, 12 weeks after initiation, and every 5 years.

Although published research is limited, studies[15-17] have shown that pharmacist involvement with patients taking SGAs improves metabolic syndrome monitoring rates. In a multicenter randomized controlled trial[15] of patients taking antipsychotics, pharmacist medication management services increased identification of hypertension and dyslipidemia compared with no pharmacist involvement. Another study[16] found pharmacist intervention increased baseline hemoglobin A1c (A1c) monitoring in patients taking SGAs. Furthermore, monitoring rates for hypertension, dyslipidemia, and diabetes mellitus in patients taking SGAs improved with reimplementation of a pharmacist-managed metabolic syndrome monitoring clinic (MSMC) at a Veterans Affairs medical center.[17]

At the Clement J. Zablocki Veterans Affairs Medical Center (ZVAMC), a pharmacist-run MSMC was developed in March 2012 to assess, monitor, and manage patients taking SGAs in the outpatient mental health (MH) clinic. The MSMC is staffed by one clinical pharmacist, who is solely dedicated to monitoring these patients. It is open 1.5 d/wk and sees approximately 75 unique patients each year.

At this facility, 85.9% of patients with a diagnosis of schizophrenia have an active prescription for an antipsychotic, and 3302 patients are prescribed an antipsychotic,

regardless of diagnosis. In 2014, a medication use evaluation (MUE) was conducted at this facility to assess baseline metabolic monitoring rates for patients taking SGAs. Results of this MUE found rates to be low compared with what was expected, with baseline BP, FLP, or weight obtained for <30% of patients.

The following barriers were identified at the ZVAMC by clinical pharmacists and psychiatrists as possible contributors to these low rates: lack of appropriate tools to conduct monitoring (unstable scale, maximum weight of 300 lbs; no tape measures); lack of standardized way for providers to refer patients to the MSMC; lack of patient and provider awareness about the risk of metabolic syndrome associated with SGA use, the monitoring parameters, and the availability of the MSMC; and financial hardships affecting follow-up.

The purpose of this project was to increase baseline metabolic syndrome monitoring rates in patients taking SGAs at the ZVAMC by implementing interventions to overcome the identified barriers and to assess the efficacy of these interventions.

Methods

Inadequate Tools

A more stable scale with a higher weight limit was obtained and placed in a semiprivate area of the outpatient MH clinic accessible to all staff. Outpatient MH clinicians were provided tape measures and a demonstration of how to accurately obtain WC. A computerized consult was developed and added into the SGA ordering menu of the electronic health record for convenient patient referral to the MSMC. It included the most recent monitoring parameters so the provider could see when they were last obtained.

Lack of Awareness

A patient-friendly pamphlet was developed and dispersed to the outpatient MH clinicians to provide to patients. It included information on metabolic syndrome: definition, associated risks, methods to decrease risk factors, and information on the MSMC. A presentation was created and delivered to outpatient MH providers which highlighted the recommended monitoring parameters, the necessity for monitoring, and the development of the pamphlets and consult.

Financial Hardships

Information on a free program that provides transportation to patients within the region was obtained and shared

with the outpatient MH providers. They were provided with informational handouts to help facilitate their patients' return for monitoring.

Data Collection

This was a quality improvement initiative that was considered exempt from institutional review board approval. Intervention efficacy was assessed via the following: referral rates to the MSMC were compared before (July-October 2015) and after (November 2015-February 2016) implementation, and appointment attendance was analyzed. Baseline monitoring rates were assessed by replication of the previous MUE, using the same criteria determined by the original clinical pharmacists. The following parameters were considered appropriate baseline monitoring if collected within the respective time frames of starting an SGA: weight and BP (collected within 1 week) and FBG/A1c and FLP (collected 3 months before to 1 week after). Any monitoring that met time frame criteria was included, regardless of ordering or recording provider. The WC was not assessed, because it was rarely recorded. Family and personal history were also not assessed because of the difficulty of locating this information in notes.

Inclusion and exclusion criteria matched those of the previous MUE. Patients included in analysis were those newly prescribed an SGA (no previous record of any SGA use at any VA site) for treatment of schizophrenia, bipolar affective disorder, or MDD (n = 50). Patients excluded were those prescribed an SGA prior to November 2015; those prescribed an SGA for indications other than schizophrenia, bipolar affective disorder, or MDD; or those who received ≤50 mg of quetiapine daily. An anonymous postimplementation survey was given to the outpatient MH providers for feedback on the MSMC and interventions (Figure 1).

Statistics

GraphPad software (La Jolla, CA) was used for statistical analysis. Chi-square tests were performed to calculate the change in monitoring of weight, BP, FBG/A1c, and FLP from before to after intervention ($P < .05$ considered statistically significant). Descriptive statistics were used to evaluate referral rates and patient appointment attendance.

Results

During the 4-month time frame prior to intervention implementation, 24 patients were referred to the clinic.

During the 4-month time frame when the interventions were implemented, 33 patients were referred to the clinic, reflecting a 37.5% increase in overall referral rates. Of these, 5 (15.2%) patients never scheduled an initial appointment, 5 (15.2%) were lost to follow-up after the initial appointment, 6 (18.2%) scheduled the initial appointment but did not attend, and 17 (51.5%) attended their initial visit and follow-up appointments as scheduled (Figure 2).

Monitoring of weight and BP increased from before intervention to after intervention (weight: 28% before and 40% after, $P = .2912$; BP: 26% before and 62% after, $P = .0006$). However, monitoring of FBG/A1c and FLP was lower (FBG/A1c: 54% before and 18% after, $P = .0004$; FLP: 44% before and 28% after, $P = .1447$; Figure 3).

Surveys were distributed to 15 outpatient MH providers, and 9 (60%) completed the survey. All (100%) indicated they saw significant benefit from the MSMC. Providers identified the following as ongoing barriers to referring patients to the MSMC: patient disinterest in being referred; transportation issues; patient preference to have primary care provider conduct monitoring; and provider forgetting to make a referral. None of the providers suggested changes they would make to the MSMC.

Discussion

Interventions to overcome barriers to monitoring and to accessing an MSMC led to an increase in referral rates of patients newly started on SGAs to the MSMC. There was no formal assessment done comparing which intervention was most effective. The presentation to the outpatient MH providers and the distribution of pamphlets appeared most effective because they were crucial in promoting the necessity of monitoring and the MSMC. The consult for referring patients and the tape measures appeared least effective because they were not used.

The results of the repeat MUE showed an increase in baseline monitoring of weight and BP but a decrease in FBG/A1c and FLP. The changes in monitoring rates of BP and FBG/A1c were statistically significant (P values .0006 and .0004, respectively), whereas those of weight and FLP were not. These results were unexpected; however, it was noted during replication of the MUE that many patients were on the acute psychiatric unit or in the MH Urgent Care Clinic during SGA initiation, a trend not noted during the original MUE. Therefore, vitals were likely obtained as part of normal patient workup in these units, rather than intentionally obtained because of SGA initiation. Considering this, and documentation in provider notes, much of the moni-

A clinical pharmacist-run Metabolic Syndrome Monitoring Clinic has been available in the Clement J. Zablocki Veteran Affairs Medical Center Outpatient Mental Health Department for the past four years. The clinic services are available to patients taking second-generation antipsychotics and the goal is to improve metabolic syndrome monitoring rates based on the recommendations as provided by the 2004 ADA/APA consensus on antipsychotic drugs, diabetes, and obesity. A quality improvement initiative project was started in the fall of 2015 to try to increase awareness of the clinic and referral rates. Please answer the following questions to help guide future direction of the Metabolic Syndrome Monitoring Clinic. This anonymous survey should only take 5 to 10 minutes to complete and your participation is completely voluntary.

1. About how many patients have you referred to the Metabolic Syndrome Monitoring Clinic within the past 3 months?

2. Are there any barriers that prevent you from referring patients to the Metabolic Syndrome Monitoring Clinic?
   a. Yes
   b. No

3. If you answered yes to number 2, please circle the applicable reason(s)/barrier(s) below:
   a. I forget the clinic is available to my patients.
   b. I forget to make the referral.
   c. I prefer to monitor and manage metabolic syndrome on my own.
   d. I rely on my patients' primary care providers to manage and monitor metabolic syndrome.
   e. My patients are not interested in referral to the Metabolic Syndrome Monitoring Clinic.
   f. I do not think regular monitoring of metabolic syndrome parameters in patients who are taking second generation antipsychotics is necessary.
   g. I previously referred patients to the Metabolic Syndrome Monitoring Clinic and did not find this service useful.
   h. Other

4. What is your preferred method for referring patients to the Metabolic Syndrome Monitoring Clinic?
   a. Consult in CPRS
   b. Adding pharmacist as a signer to notes
   c. Speaking with pharmacist directly
   d. Other

5. I am aware of the Metabolic Syndrome Monitoring Clinic consult, located in the mental health order menu in CPRS.
   a. Yes
   b. No

6. I see significant clinical benefit from the Metabolic Syndrome Monitoring Clinic.
   a. Yes
   b. No
   c. Not applicable

7. The Metabolic Syndrome Clinic notes are clear and concise.
   a. Yes
   b. No
   c. Not applicable

8. I am familiar with the recommended ADA/APA monitoring parameters for second generation antipsychotics.
   a. Yes
   b. No

9. What is one thing you would change about the metabolic clinic?

10. Please provide any other comments or questions you may have:

FIGURE 1: Outpatient mental health clinic provider survey (ADA/APA = American Diabetes Association/American Psychiatric Association; CPRS = Computerized Patient Record System)

toring that occurred did not appear to be directly related to SGA initiation. Observationally, it seemed that a lack of purposeful monitoring occurred both before and after intervention.

Importantly, survey results indicated providers see significant benefit from the MSMC and appreciate pharmacist input. However, they noted patient disinterest in the MSMC, patient inability to attend appointments, or their own forgetfulness to refer patients as ongoing barriers. These areas were identified as barriers

at the beginning of the project. These responses justify the project interventions but also highlight the need for continued development of ways to further overcome these barriers.

Many future directions can be considered for this project and for others who want to start an MSMC, increase referral rates to an existing MSMC, or increase metabolic monitoring rates in general. Rates of follow-up monitoring should be assessed because they may have improved because of increased referrals to the MSMC. Continued
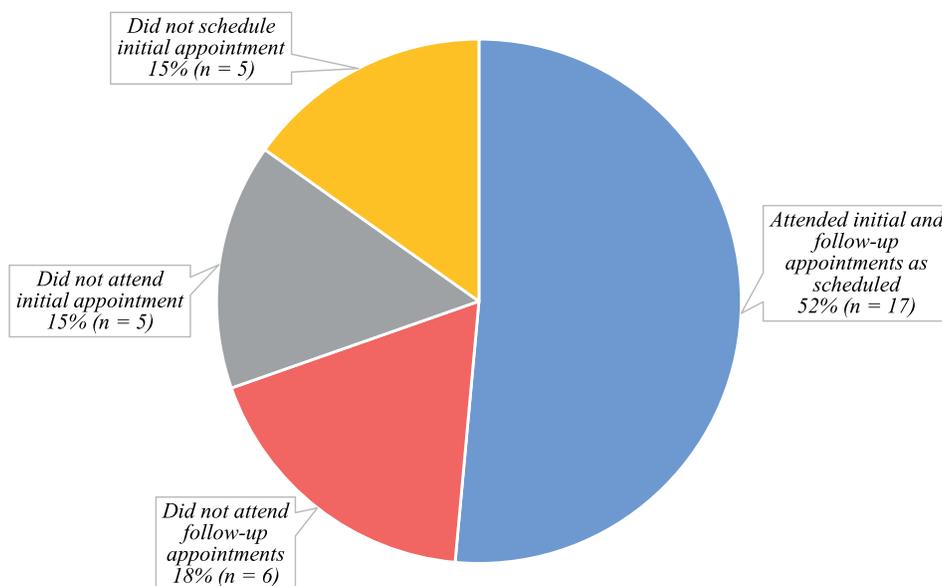
FIGURE 2: Attendance at metabolic syndrome monitoring clinic appointments following provider referral

efforts to remind providers about the importance of monitoring and the availability of the MSMC are crucial because this was identified by providers as an ongoing barrier and there appeared to be a lack of purposeful monitoring. Some outpatient MH clinicians might feel uncomfortable managing abnormal labs and may avoid ordering them. Clinical pharmacists can help interpret lab values and make recommendations regarding treatment. In addition, monitoring rates may improve if clinicians allow nonfasting bloodwork. Although some labs would need to be interpreted with caution, this would help patients avoid another trip to the medical center. One way to increase monitoring of vitals would be to advocate for nurses or nursing assistants to check BP, weight, and WC before appointments, similar to what is done in primary care clinics.

Future directions can also be extended outside of the outpatient MH clinic. Inpatient pharmacists can identify patients taking SGAs and provide education on potential side effects and the MSMC. Outreach to inpatient psychiatrists and MH Urgent Care Clinic providers is critical because much of the SGA initiation during the study period took place in these settings. Collaboration
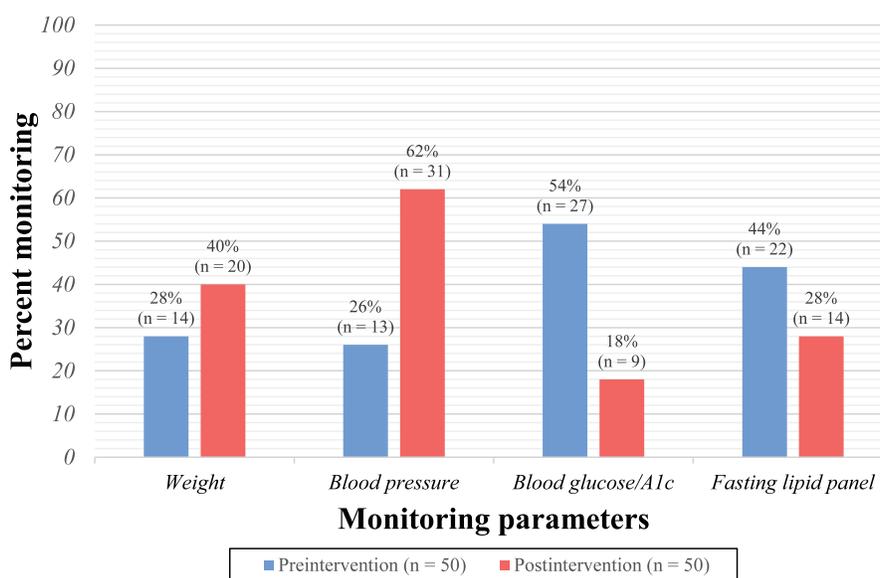
FIGURE 3: Preintervention and postintervention monitoring rates

with primary care providers can improve coordination of care and minimize unnecessary appointments. The presentation given to outpatient MH providers can be delivered to clinicians in these other areas, so they are more acutely aware of the need for monitoring and the availability of the MSMC. The educational pamphlets should also be dispersed in these areas.

Finally, patient outreach is essential. Possible ways of improving patient outreach include creation of a patient-directed survey to assess knowledge of risks of metabolic syndrome and potential reasons for disinterest in the clinic. The pamphlets should be placed in patient waiting areas for increased visibility, rather than relying on providers to distribute them. Information regarding free transportation programs could be added to the pamphlets. To help minimize transportation issues, pharmacists in the MSMC should try to schedule patient appointments in conjunction with other appointments. Education could also be provided to clinic secretaries about the free transportation program because they may be better able to provide that information to patients during scheduling.

There were several limitations to this study: fasting state was verbally confirmed and may not have always been accurate. Patients who had a previous diagnosis of diabetes mellitus or cardiovascular disease were not excluded or separately analyzed, which may have skewed results to reflect higher monitoring rates, although rates were lower than expected even with inclusion of these patients. Although it was well attended, not all outpatient MH providers saw the presentation and thus may not have received the pamphlets. No assessment was performed on whether providers used the pamphlets or distributed information on the MSMC or transportation program to their patients. Finally, metabolic syndrome monitoring rates between the pharmacists and psychiatrists were not compared because the primary goal of this project was to improve the overall baseline monitoring rates as a whole at this institution.

Conclusion

Overall, baseline metabolic monitoring rates remained low despite implementing several interventions to obtain appropriate tools for monitoring, increase awareness, and reduce financial hardships limiting return for care. Patient and provider outreach is vital for successfully monitoring metabolic parameters in patients taking SGAs. Focusing efforts to expand both patient and provider awareness will likely yield increased monitoring and referral rates, thus improving patient care and health.

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