Improving Metabolic Syndrome Screening on Patients on Second Generation Antipsychotic Medication

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A B S T R A C T

Aim: This quality improvement project aims at stressing the importance of screening for metabolic syndrome (MS) on patients with serious mental illness (SMI) managed with second generation antipsychotic (SGA) medication.

Method: One hundred charts of patients who were on SGA (n = 100) were randomly selected from more than 1000 charts for the purpose of this project with (n = 50) charts for pre-intervention and (n = 50) charts for post intervention. A chi-square test of independence was calculated comparing the frequency of labs and vital done in pre-intervention and post-intervention period.

Results: A significant interaction was found [$\chi^2(2) = 32.67$, p < .001] indicating that providers were more likely to order labs in postintervention (62%) than in pre-intervention (22%). No significant relationship was found for vital signs [$\chi^2(1) = .542$, p > .05]. The use of the screening and monitoring tool showed that gaps exist in the screening for MS among patients on SGA.

Implication to practice: Advanced health nurse practitioners are well placed to take the lead in screening, monitoring, and implementing the necessary measures to address MS among patients with serious mental illness.

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The development of second generation antipsychotic (SGA) medication has led to an increase in their use due to the ability to control both negative and positive symptoms of psychosis. The use of SGA among patients with serious mental illness (SMI) has seen an increase in the occurrence of metabolic syndrome (MS) as one of the side effects. Vancampfort et al. (2013), found the prevalence of MS among patients using SGA to be greater than in the general population. This high preference of MS among this population has led to increased mortality and morbidity, and increase in use of healthcare resources. To reduce the occurrence of MS, there is a need for screening and monitoring for its occurrence. However, many health care providers do not screen and monitor for MS among patients with SMI. Holt et al. (2010) posit that despite the high prevalence of MS among individuals using SGA, screening for its occurrence remains suboptimal. This laxity in monitoring for MS is a common health problem and a local community mental health facility in a southwestern state is not an exception. The purpose of this quality improvement (QI) project was to improve screening rates for MS for early identification, timely intervention, and treatment among the SMI patients.

AIM

The use of second generation antipsychotic medication has been on the increase due to the ability to treat both negative and positive symptoms of psychosis. The aim of this QI is to promote and increase screening for MS among SMI patients on SGA. The purpose of the screening is to enable mental health clinicians to ensure early management and referral of the affected patients for specialized treatment is done. The project aims to answer the following question of whether implementation of the MS screening and monitoring tool will increase the screening rates of patients at risk of MS for management and referral.

LITERATURE REVIEW

Metabolic syndrome is a combination of symptoms of high blood pressure, high cholesterol, high fasting glucose, and truncal obesity which can lead to cardiovascular disease and/or type two diabetes (Alberti et al., 2009). Any elevated values of high blood pressure, cholesterol, blood sugar, and increased waist circumference should be a warning sign of development of MS. It is estimated that 20–25% of the world's adult population has MS with higher rates among the SMI population (De Hert et al., 2011; Mitchell et al., 2013a; Mitchell et al., 2013b). A

Table 1
Chi-Square Tests.

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	32.679[a]	2	.000
Likelihood ratio	35.239	2	.000
Linear-by-linear association	24.135	1	.000
N of valid cases	100		

NOTE. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.00.

study by Kagal, Torgal, Patil, and Malleshappa (2012) found the prevalence of MS to be 35% among patients diagnosed with schizophrenia. Studies by Khalil (2012), Ervin (2009), Sweileh et al. (2012), Lee, Chow, and Leung (2011), found the prevalence of MS to be worldwide the SMI population. These statistics not only highlight the magnitude of this condition, but also enlightens how it remains undiagnosed. Undiagnosed and untreated MS remains high due to suboptimal screening which leads to missed opportunities for use of primary preventive measures (De Hert et al., 2011; Hasnain, Fredrickson, Vieweg, & Pandurangi, 2010; Mitchell, Delaffon, Vancampfort, Correll, & De Hert, 2012). Failure to diagnose MS among the SMI population in a timely manner has dire consequences which includes development of other comorbidities and decreased life span. The missed opportunities are linked with high indisposition and death rates (Holt et al., 2010; Vancampfort et al., 2013). To reduce the occurrence of MS, there is need to have better screening methods and tools in place. Regular monitoring and adequate preventive efforts for MS risk factors are imperative (Vancampfort et al., 2013). Ronsley, Raghuram, Davidson, and Panagiotopoulos (2011) posits that lack of knowledge of the required monitoring parameters and poor communication is one of the biggest obstacle for collaborative care success. This lack of knowledge thus creates the need to have an effective tool that can be used to monitor for MS. Riordan, Murphy, and Antonini (2011) emphasized the need for supporting programs that are geared towards increasing monitoring of laboratory and clinical measures. These measures will reduce risk factors associated with MS, improve patient's quality of life and reduce health related costs. The American Diabetes Association, American Psychiatric Association, and American Association of Clinical Endocrinologists and North American Association for the study of obesity (2004) recommend implementation of the MS screening protocol to facilitate preventative strategies, early diagnosis, and monitoring of metabolic disturbance to address this problem. Lack of transforming guidelines into action to prevent, diagnose early and treat MS risk factors among SMI was found to be the highest setback (Saloojee, Burns, & Motala, 2014). Low serum high density lipoprotein and fasting blood glucose have been found to have the highest sensitivity for screening for MS at 89.28% and 90.38% respectively (Kagal et al., 2012). This mandates the adoption of the recommended MS screening and monitoring guidelines to monitor fasting glucose or glycated hemoglobin, lipid panel, weight, waist circumference, and height to identify MS early.

METHOD

The method used in this QI was pre and post-intervention design. The QI was to evaluate the effectiveness of using the recommended MS monitoring and screening tool in improving identification of patients at risk for MS. The project was approved by the university institutional review board prior to implementation, and was conducted in an outpatient mental health facility in a south western state. The project was carried over a two month period of time. The QI consisted of contacting baseline audition and screening for MS in selected charts (n = 50), of patients seen at the facility from January 1 to January 31, 2015. The charts were selected randomly from over 1000 charts of patients who were on one or more SGA. The charts were reviewed for whether the patient was on SGA, and whether MS screening had been done per the recommended guidelines. The data comprised of monitoring of blood pressure, weight, height, lipid panel, fasting glucose and/or glycated hemoglobin parameters. Before implementation of the screening and monitoring tool, a meeting was held with the mental health providers and medical assistants to discuss the project and the use of the screening tool. Education on the use of the tool and the importance of adhering to the recommended guidelines was discussed during the meeting. The emphasis was on the importance of monitoring for MS using the recommended guidelines (Appendix A). All mental health providers were given the screening and monitoring tool in paper format to collect the required information. Audition of patients' charts (n = 50) of patients seen from February 1 to February 21, 2015 after the implementation of the monitoring and screening tool was done. The charts used for the post intervention were different from charts used for pre-intervention as this writer wanted to find if after the implementation of the screening tool there was improvement in patients screened for MS.

The recommended MS screening and monitoring tool (Appendix B) was developed during a consensus conference between the American Diabetes Association, American Psychiatric Association, American Association of Clinical Endocrinologists, and North American Association for the Study of Obesity, which met to address the growing problem of MS among patients on SGA (American Diabetes Association et al., 2004). The tool in use contains the required monitoring parameters that are necessary to guide mental health providers in screening for MS. This tool was adopted from Missouri Department of Mental Health as it was succinct and easy to use. Post intervention data were collected from February 1, 2015 to February 21, 2015.

PARTICIPANTS

The QI consisted of a total of 100 patients' charts with 50 charts for pre-intervention and 50 charts for post-intervention. The patients' charts were selected randomly among the patients seen during that time. The inclusion criteria included charts for patients on SGA, ages 19 years and above seen at the clinic during that time. Exclusion criteria included charts of patients 18 years and below, and those not on SGA. Of the total 100 charts reviewed, 65 of the patients were on one SGA medication while, 35 of them were on two or more antipsychotic medications. Since this was a QI project and screening for MS is part of the routine requirement for all patients seen at the clinic, approval from the facility independent review board (IRB) was not required; however, a project proposal was submitted to the university IRB for approval. In addition, informed consent was not required because patients routinely sign conditions of treatment to receive regular care which includes monitoring for MS.

Table 2
Chi-Square Tests.

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson chi-square	.542[a]	1	.461		
Continuity correction[b]	.241	1	.623		
Likelihood ratio	.544	1	.461		
Fisher's Exact Test				.624	.312
Linear-by-linear association	.537	1	.464		
N of valid cases	100				

[a] 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.50.
[b] Computed only for a 2 × 2 table.