



Editorial

The Challenge of Myocardial Infarction in Patients With Mental Illness

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See article by Mohamed et al., pages 821–830 of this issue.

Cardiovascular disease is one of the leading causes of mortality in patients with severe mental illness (SMI). Patients with schizophrenia and other psychotic disorders are more likely to die from cardiovascular disease than those without mental disorders.¹ Furthermore, bipolar disorder and schizophrenia have been associated with shorter life expectancy.² Several interlocking factors contribute to these disparities.

Disparities in Care of Patients With SMI

Patients with SMI are more likely to have comorbidities such as diabetes and obesity, which might in part be propagated by antipsychotic medications. Patients with SMI have higher rates of adverse lifestyle factors such as substance abuse, smoking, physical inactivity, and poor diet, all of which increase the risk of heart disease. Patients with SMI frequently also suffer from cognitive impairment, social isolation, and poor health literacy; all of these factors contribute to worse self-care and lower rates of treatment adherence. Finally, physicians might have unintentional bias or be unequipped to handle the issues that arise with caring for this population of patients.³

Clinical Outcomes and Management of Acute Myocardial Infarction in Patients With SMI

In this issue of the *Canadian Journal of Cardiology*, Mohamed et al.⁴ observe that patients with SMI in the United States are at increased risk of adverse clinical outcomes after acute myocardial infarction (AMI). The study involved a retrospective observational analysis of the National Inpatient Sample (NIS) database to extract data on patients who were hospitalized with the discharge diagnosis of AMI, including ST-elevation myocardial infarction and non-ST elevation

myocardial infarction, between 2004 and 2014. On the basis of discharge diagnoses, patients were then stratified into subgroups of schizophrenia, bipolar disorder, “other non-organic psychoses,” and major depression. The authors observed that patients with other nonorganic psychoses and schizophrenia had the highest in-hospital rates of major acute cardiovascular and cerebrovascular events compared with other SMI subtypes and patients without SMI. Schizophrenia was the only subtype associated with increased odds of in-hospital mortality. The authors also observed that all SMI subtypes were associated with reduced odds of receiving coronary angiography and percutaneous coronary intervention, with schizophrenia patients being the least likely to undergo these invasive procedures.

Several previous studies have shown higher mortality rates after myocardial infarction in patients with SMI (which is not always inclusive of depressive disorders).^{5–7} Most studies have investigated SMI subtypes of schizophrenia and bipolar disorder; however, the current study by Mohamed et al. expanded on the previous literature by including additional diagnoses (especially major depression) within SMI and further stratifying according to sex.⁴ Significantly, the highest rates of in-hospital mortality were observed in men and women with schizophrenia. This troubling finding concurs with multiple previous studies in various cohorts, including the NIS.

Previous studies have observed that patients with SMI are less likely to receive invasive revascularization procedures.^{7,8} The present study by Mohamed et al. concurred, showing that patients with SMI of all subtypes were less likely to receive coronary angiography and/or percutaneous coronary intervention, with schizophrenia having the lowest odds. These rates were also lower among women across all study groups.⁴ These findings align with previously published work from the NIS, which showed a persistent gap in revascularization in patients with SMI (particularly schizophrenia) despite the increasing use of percutaneous revascularization over time.⁷

Strengths and Weaknesses

The use of the NIS is advantageous because it allows for population-wide analysis of trends over time. This allows the

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authors to study an often-overlooked subgroup of patients who are rarely recruited into clinical trials. As the authors note, the NIS is limited in the sense that it is susceptible to the vagaries of medical coding, which cannot attest to the severity or duration of mental illness. Similarly, the specific coding of myocardial infarction (particularly non-ST elevation myocardial infarction) cannot provide much data regarding common variables such as ejection fraction, coronary anatomy, biomarker levels, timing of interventions, or pharmacologic therapy. Notably, the rate of shock was slightly higher in patients with schizophrenia, which might point to differences in disease severity (or the sequelae of lower rates of revascularization). Data on many other comorbidities that could influence in-hospital outcomes are only crudely or incompletely captured by the NIS. These unknown variables might or might not contribute to many of the observed disparities between patients with and without SMI.

Additionally, there might be differences in long-term outcomes of patients with SMI that are not reflected in the conclusions of this study, because the NIS data set does not include posthospitalization outcomes such as readmission and mortality. Previously, patients with SMI have been shown to have higher 30-day and 1-year mortality after myocardial infarction,⁵ which might be influenced by several other factors including outpatient care. A previous study has shown that rates of psychiatric comorbidity and receipt of revascularization after AMI differed depending on whether patients were identified using outpatient or inpatient diagnosis codes.⁹ This warrants the necessity of future studies that investigate long-term and outpatient cardiovascular care of patients with SMI.

Notably, Mohamed et al. describe an increase in the prevalence of SMI among the AMI population over the period, primarily because of an increase in major depression and bipolar disorder.⁴ The increase in coding of major depression might reflect an increasing population prevalence, a change in its recognition over time, or might be related to more nuanced billing. Alternatively, previous studies that used data from the NIS from 2003 to 2012 showed that the prevalence of ST-elevation myocardial infarction has decreased in patients without mental illness but remained stable in those with SMI and depression.^{7,10} Consequently, the population of AMI patients might be increasingly “sick” with mental health comorbidities, a finding that should be unsurprising for any clinical cardiologist.

Conclusions

Acute cardiovascular disease is often a late manifestation in those who have had lives made difficult by mental illness,

particularly those with severe diseases such as schizophrenia. Many of these patients are often “older than their stated age,” and suffer from physical and behavioural comorbidities that make their care challenging. Most of these maladies are far more nuanced than can be observed in an administrative database. However, the findings of Mohamed et al.⁴ and similar studies should direct clinicians and researchers toward finding ways to reduce disparities for some of the most vulnerable patients that we encounter.

Disclosures

The authors have no conflicts of interest to disclose.

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