

Integrated Community Cardiac Clinic for the Assessment of Cardiovascular Disease in Severely Mentally Ill Patients

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Abstract

Cardiovascular disease (CVD) accounts for ~20% of physical comorbidity amongst people diagnosed with severe mental illness (SMI), and people of all ages have reduced life expectancy compared to the general population.

69 patients on our SMI register were invited to attend a one-stop cardiac assessment clinic in the general practice setting between June 2021 and March 2022. The consultation included a CV risk assessment which consisted of detailed CV history and examination including 10 year CV risk assessment, blood panel work-up and electrocardiography (ECG).

42 patients (61%) attended the clinics. Mean age of the patients were 38.9 ± 3.9 years (range 22-63). The mean 10 year-CV risk using the QRISK2 tool was $11.4 \pm 6.7\%$. Only 5 patients were on statin therapy at presentation in clinic. 24 patients (57%) were diabetic with mean HbA1c of 53 ± 2.7 Mmol/L. 39 out of the 42 patients smoked. Mean body mass index was 34.5 ± 1.9 with mean blood pressure at $132 \pm 13/ 87 \pm 21$ mmHg. Mean LDL was 2.9 ± 1.1 mg/dl. 6 patients reported ECG abnormalities suggestive of ischaemic changes and were referred to cardiology for further work-up. 2 patients have now undergone percutaneous coronary intervention with stent placement and the remaining 4 patients are receiving medical management. All patients with high QRISK2 scores have been offered statin therapy.

Given the shortened life span of people with SMI, and the considerable contribution of CVD to earlier mortality, the data support more thorough screening and effective management of major cardiovascular risk factors within the community setting.

Keywords: Cardiovascular, Severe, Mental health

Introduction:

Severe mental illness (SMI) is a term used to group common psychiatric disorders such as schizophrenia, bipolar affective disorder, and major depressive disorder, which are debilitating and significantly affect functional abilities^{1,2}. People of all ages with SMI have a reduced life expectancy of up to 20 years compared to the general population³ with the majority being due to preventable physical conditions. Cardiovascular disease (CVD) and diabetes represent the highest proportion of natural causes of death in people with SMI⁴ with CVD contributing 17.4% and 22% to the reduction in life expectancy in men and women respectively⁵. SMI patients also have the added disadvantage of disengaging often with health services and this adds further to establishment of risk and progression of disease to a latent phase⁶. We therefore undertook a quality improvement project to invite all the SMI patients on our register with unknown CVD risk to a CV assessment clinic.

Methods & Results:

Table 1 outlines the inclusion and exclusion criteria used to select patients in this study. A total of 78 patients (1.2% of the population) were on our SMI register of which 9 patients were known to have pre-existing CVD and have been on regular yearly follow-up. Therefore, the remaining 69 patients were offered a clinic appointment during the period of June 2021 to March 2022 for cardiovascular risk assessment. At the clinic, healthcare staff filled a CV assessment risk questionnaire, including basic demographics, past and present cardiology and smoking history, undertook electrocardiography (ECG) and blood panel results which included lipid and renal function tests. The quality improvement clinical protocol was sent to the University Institutional Ethics Review Committee and ethics requirement was waived. This study was conducted according to the declaration of Helsinki⁷ and all patients were consented for collection of anonymized data. 42 patients (61%) attended [age range (22-63 years)] with a male to female ratio of 1:2. The clinical and laboratory characteristics with baseline demographics are highlighted in Table 2. Mean age of the group that attended was 38.9 ± 3.9 years but more interestingly the mean age of the patients that failed to attend was 9 years higher. 60% of the patients were on anti-psychotics on presentation to the clinic with mean period of treatment 5.8± 1.9 years.

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none">• Patients with a diagnosis of SMI on the SMI register• No known history of CVD• Aged 18 and above	<ul style="list-style-type: none">• Pre-existing CVD• Aged 17 and under

Table 1. Inclusion and exclusion criteria used to select patients in this study.

Characteristic	
Age in years (Mean and SD)	38.9 (3.9)
History of CVD [n (%)]	
<ul style="list-style-type: none"> • Yes • Unknown 	1 (2.3) 41 (97.7)
Medication [n (%)]	
<ul style="list-style-type: none"> • Anti-hypertensives • Statins • Anti-psychotics • Anti-diabetic 	5 (11.9) 3 (7.1) 25(59.5) 4 (9)
Diabetic [n (%)]	
<ul style="list-style-type: none"> • Yes • HbA1c (Mean and SD) 	24 (57) 7.9 (1.8)
Smoking status[n (%)]	
<ul style="list-style-type: none"> • Smokers 	39 (92.8)
Body Mass index [n (%)]	
<ul style="list-style-type: none"> • Healthy • Overweight • Obese 	4 (9.5) 19 (45.2) 19 (45.2)
Lipid Panel (mean and SD)	
<ul style="list-style-type: none"> • Total cholesterol (mg/dl) • HDL (mg/dl) • LDL (mg/dl) 	5.4 (1.4) 1.4 (0.2) 2.9 (1.0)
Blood Pressure (mean and SD)	
<ul style="list-style-type: none"> • Systolic (mmHg) • Diastolic (mmHg) 	138 (12) 87 (21)
QRISK2 score (n (%))	
<ul style="list-style-type: none"> • <5% • 10-20% • >20% 	2 (4.7) 32 (76) 8 (19.3)

Table 2. Clinical Characteristics of SMI patients attending cardiac clinic
Based on CVD risk assessment and ECG findings, 39 patients (93%) were offered statin, anti-hypertensive and/or diabetic therapy. 6 patients were referred for coronary angiography studies and 7 patients were referred for community echocardiography to assess structural heart disease. The mean age of the patients referred for coronary angiography was 44.8 ± 1.2 years. 33% of those patients underwent percutaneous coronary intervention with stent insertion in the following nine months and the remaining are being managed on optimized medical therapy.

Discussion

61% of participants responded to invitations for cardiovascular screening giving a non-compliance rate of 39%. This is a better than average response given that globally the non-compliance rates for people with SMI ranged from 30% to 65%⁶. This is highly likely due to the trust and rapport built between patients and clinicians in primary care. This high turnout of participants also suggests there is possibly some established understanding of the increased risk of CV events amongst people with SMI. Over 90% of the participants had a QRISK2 score above 10%. This supports the study by Rossom et al⁸ which found a significant risk of CVD associated with SMI which is evident in young adults.

SMI can increase the risk of CVD both directly, through biological processes, and indirectly, through adopting behaviours such as smoking, poor diet or inactive lifestyle. The data shows that 93% of participants smoked, 57% were diabetic, and the mean body mass index was 34.5 ± 1.9 (obese category), which are all modifiable risk factors for CVD. This may be due to people with SMI having fewer healthy coping strategies⁸ which may make it more difficult for them to adopt a healthier lifestyle.

Given that people with SMI have a shortened lifespan and a 53% higher chance of CVD compared to the general population⁹⁻¹¹, the data highlights the importance of early intervention for more thorough screening and effective management of cardiovascular risk factors in the community to reduce morbidity and mortality in this population.

''The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All procedures involving human patients were reviewed by De-Montfort University Ethics Review Board, Protocol no. 2021/0779-6''

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