Statin prescription and CV risk assessment in adult psychiatric outpatients with intellectual disability

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We performed a single-centre study to assess the risk of cardiovascular disease (CVD) in psychiatry outpatients with intellectual disability (ID) using the QRISK-3 score.

There were 143 patients known to the ID psychiatry clinic enrolled. Of these, 28 (19.6%) had elevated CVD risk – defined as 10-year risk of heart attack or stroke of ≥10%. Of these, 57.1% were not prescribed statin therapy, which – after lifestyle measures – is recommended by National Institute for Health and Care Excellence (NICE) guidelines. The mean QRISK-3 score was 6.31% (95% confidence interval [CI] 4.84 to 7.78), with a relative risk of 3.50 (95%CI 2.34 to 4.67) compared with matched controls.

The high CVD risk identified in this study supports routine CVD risk assessment and management in adult outpatients with ID. Appropriate lifestyle measures and statin therapy could help reduce the excess CVD-related morbidity and mortality in ID patients.

Introduction

Compared with the general population, life-expectancy for people with intellectual disability (ID) is 13 years lower in men and 20 years lower in women.[1] Cardiovascular diseases (CVDs) are the leading cause of mortality in ID patients, accounting for 21% of all adult deaths.[2] The Dutch Healthy Ageing and Intellectual Disability (HA-ID) study found similar levels of CVD risk in ID patients over 50 years as age-matched controls.[3] However, CVDs are significantly underdiagnosed and undermanaged in people with ID. In one study, only 15% of patients with ID who died from CVD had a documented CVD risk assessment.[1,2]

Assessment of CVD risk can guide primary and secondary prevention strategies, and reduce morbidity and mortality. The nationally validated QRISK-3 score predicts the 10-year risk of developing a heart attack or stroke. The National Institute for Health and Care Excellence (NICE) recommends CVD risk assessment in all adults over 25 years. After lifestyle interventions have been tried and secondary causes excluded, statin therapy should be offered to all patients with a 10-year risk greater than 10%.[4] Statin therapy may need to be considered more proactively for patients with ID at higher CV risk because adherence to lifestyle measures can be challenging.[5]

This study aimed to understand the level and distribution of CVD risk using the QRISK-3 score in an unselected outpatient ID population.

Method

All patients with diagnosed ID in an urban intellectual disability psychiatry outpatient clinic were prospectively enrolled in the study. Inclusion criteria were adults with ID who had sufficient information in their electronic medical records to calculate their QRISK-3 score. Exclusion criteria were individuals below 25 years (QRISK-3 does not include this age group) without an ID diagnosis, or who had been discharged. All patients with ID in this study qualified for free prescriptions.

Recorded data included demographics and postcode, medical and psychiatric diagnoses, and laboratory results. These were derived from the Summary Care Records used by general practitioners, the electronic system used by the ID service, and the medical laboratory test results portal. CVD risk was calculated using the official QRISK-3 online tool (https://qrisk.org/three/). An elevated CVD risk was defined as a QRISK-3 score of ≥10%.[4] Using the official QRISK-3 tool, the relative CVD risk for patients with ID was calculated by comparing QRISK-3 scores for enrolled patients

Table 1. Population characteristics

Variable		Total (n=143)	QRISK ≥10% (n=28)	QRISK <10% (n=115)	p value
ID	Mild (%)	73 (51.0)	14 (50.0)	59 (51.3)	0.551
	Moderate (%)	36 (25.2)	9 (32.1)	27 (23.5)	–
	Severe (%)	34 (23.8)	5 (17.9)	29 (25.2)	–
Age, years (SD)		43.3 (14.8)	63.4 (11.4)	38.4 (10.9)	<0.001
Female (%)		67 (46.9)	13 (46.4)	54 (47.0)	0.960
Diabetes	Type 1 (%)	2 (1.4)	1 (3.6)	1 (0.9)	0.005
	Type 2 (%)	17 (11.9)	8 (28.6)	9 (7.8)	–
Chronic kidney disease (%)		7 (4.9)	5 (17.9)	2 (1.7)	0.003
Atrial fibrillation (%)		2 (1.4)	2 (7.1)	0 (0)	0.037
Antihypertensives (%)		34 (23.8)	16 (57.1)	18 (15.7)	<0.001
Severe mental illness* (%)		95 (66.4)	18 (64.3)	77 (67.0)	0.788
Anxiety disorder (%)		31 (21.7)	2 (7.1)	29 (25.2)	0.037
Atypical antipsychotic (%)		88 (61.5)	17 (60.7)	71 (61.7)	0.920
Statin (%)		24 (16.8)	12 (42.9)	12 (10.4)	<0.001
Cholesterol/HDL ratio (SD)		3.59 (1.41)	3.44 (2.10)	3.63 (1.16)	0.579
Systolic blood pressure (SD)		122.4 (14.6)	127.7 (15.3)	120.9 (14.2)	0.032
SD systolic blood pressure (SD)		9.67 (4.82)	11.5 (5.1)	9.1 (4.6)	0.021
QRISK score, ID population (SD)		6.31 (8.95)	21.64 (8.58)	2.58 (3.27)	<0.001
QRISK score, reference (SD)		3.29 (5.66)	11.35 (8.50)	1.33 (1.73)	<0.001

*Severe mental illness defined according to QRISK-3 study, which includes schizophrenia, bipolar disorder and moderate/severe depression

Key: HDL = high-density lipoprotein; ID = intellectual disability; SD = standard deviation

with healthy age- and ethnicity-matched controls.

Categorical variables were presented as a frequency and percentage, and compared using the Chi-square or Fisher's exact test, as appropriate. Continuous variables were presented as mean and standard deviation (SD), and compared using the Student's *t*-test. Multiple comparisons between age categories were performed using ANOVA with a *post-hoc* Bonferroni adjustment. Statistical tests were performed using SPSS version 25 (Armonk, NY, IBM Corporation) and p<0.05 was considered statistically significant.

Results

There were 143 patients enrolled in the study and 53 were excluded (51 who were <25 years, and two who had insufficient data). Of the 143 included participants, 89% had blood pressure recordings and 90% had height and weight recordings; 73% had recent lipid serology results. There were 73 (51.0%) patients who had mild ID, 36 (25.2%) moderate ID, and 34 (23.8%) severe ID. The mean age was 43.3 years (SD 14.8) and 76 (53.1%) patients were male (**table 1**; supplementary table 1).

The primary analysis showed that 28 (19.6%) patients had an elevated QRISK-3 score of ≥10% (**table 1**). Nine (6.3%) had a score of 10–15% (borderline elevation) and 16 (11.2%) had a score of ≥20% (significant elevation, high risk). The mean QRISK-3 score was 6.31% (SD 8.95, 95% confidence interval [CI] 4.84 to 7.78) and the reference QRISK-3 score for the healthy, matched, reference population was 3.29% (SD 5.66, 95%CI 2.36 to 4.22). The relative increase in CVD risk in ID patients compared with a healthy reference population was 3.50 (SD 7.13, 95%CI 2.34 to 4.67).

Patients with elevated CVD risk were older (p<0.001), had more comorbidities, including diabetes mellitus (DM), chronic kidney disease (CKD) and atrial fibrillation, and had higher systolic blood pressure and blood pressure variability compared with those with low CVD risk. Interestingly, severe mental illness (SMI) – defined as bipolar disorder, schizophrenia or psychotic disorder – was not associated with elevated CVD risk, perhaps due to the small sample size. However, anxiety disorder was more common in those with reduced CVD risk (7.1% *vs.* 25.2%, p=0.037). Patients >55 years were more likely to have a QRISK-3 ≥10% compared with those aged 25–34 years (p<0.001) (supplementary table 2). All patients >65 years had a QRISK-3 ≥10%. Those with a QRISK-3 ≥10% were more likely to be on statin medications (p<0.001). However, of the 28 patients with elevated CVD risk, 16 (57.1%) were not prescribed statins.

SMI was present in 45 patients (31.5%) (supplementary table 3). Significantly more patients with SMI had mild ID (p=0.013). Although obesity – defined as a body mass index (BMI) ≥30 kg/m^2 – was more common in patients with SMI (26, 63.4%) compared with those without (35, 42.4%) (p=0.026), the mean QRISK-3 score and proportion of patients with QRISK ≥10% did not differ between these two groups.

Overall, 24 (16.8%) patients were prescribed statins before the study, half of whom had elevated QRISK-3 scores. Those who were previously taking statins had a higher QRISK-3 score (14.0%, SD 10.3) compared with those who were not (4.7%, SD 7.82, p<0.001). Interestingly, while a similar proportion of patients with and without SMI had a QRISK-3 score ≥10%, significantly more people with SMI were prescribed statins (14 [31.3%] *vs.* 10 [10.2%], p=0.002).

Discussion

The main finding is that approximately 20% of an unselected outpatient ID population

had elevated CVD risk, which – after lifestyle measures and the exclusion of secondary causes – reaches the threshold for primary prevention medical therapy. However, lifestyle interventions can be difficult in this population, and over half of those meeting this threshold were not prescribed statins.

Research into the epidemiology of CVD in ID is scarce and often contradictory. Some studies suggest adults with ID have a higher prevalence of CVD than the general population,[6] while others report that ID patients have lower prevalence of ischaemic heart disease.[7] One explanation for lower recorded prevalence may be under-recognition of CVD in ID patients, for example due to atypical presentations, and real or perceived challenges in taking an accurate history or performing appropriate examinations or investigations.[1] However, as in all patients, thorough CVD risk assessment and management is important, particularly as life-expectancy and, therefore, CVD risk in ID patients is increasing over time.[1]

The presence of CVD risk factors is common in patients with ID. An audit of 54 UK mental health trusts found that 64% of ID patients were prescribed antipsychotic medications – an important standalone CVD risk factor.[8] The HA-ID study on adults ≥50 years found that hypertension, DM and the metabolic syndrome were present at the same rate as the general population. However, 50% of those with hypertension in the HA-ID study were undiagnosed, and a Swedish registry-based study reported a frequent failure to review treatment plans in this group.[3] This suggests that CVD risk factors are common, but may be under-recognised, under-diagnosed and under-managed in the adult ID population.

SMIs are associated with CVD and are more common in patients with ID.[9,10] Purported mechanisms behind the association with CVD include autonomic nervous system dysfunction, inflammation, oxidative stress, increased platelet reactivity,[11] and increased prevalence of obesity, hypertension, DM and hyperlipidaemia.[10] In keeping with this, our study found that obesity was more common in those with ID and SMI. UK studies have found that 28% of adults with ID had concurrent mental health diagnoses – twice that of the general population.[9] The cohort in our study had higher prevalence of mental health diagnoses, likely due to selection bias in the psychiatry clinic.

The QRISK-3 tool is validated for assessing CVD risk, and may be useful – but has not been tested – in the adult ID population.[12] With the recent addition of risk factors including SMI and antipsychotic medication, the latest QRISK-3 score may be better suited to the ID population than previous iterations. This is the first study to investigate the use of QRISK-3 specifically in the ID population, although recent national guidelines from the Royal College of Psychiatrists support its use in patients with ID and co-existing attention deficit hyperactivity disorder (ADHD).[5] Our study shows that data collection for QRISK-3 calculation is feasible using routinely collected healthcare data in the outpatient setting. Particular attention should be paid to ID patients, especially those >55 years and with hypertension, DM, CKD and atrial fibrillation, who are more likely to have elevated CVD risk.

Implementation of CVD risk reduction strategies using behavioural and lifestyle changes in people with ID is challenging. NICE guidelines recommend that individuals with a 10-year CVD risk of ≥10% are given lifestyle advice.[4] If lifestyle modification is ineffective or inappropriate, a statin should be offered. Public Health England agree that lifestyle changes are difficult in people with ID, perhaps due to lack of accessibility to national programmes, staffing shortages limiting support for physical activity, and lack of understanding of the importance of lifestyle measures.[13] Given the challenges of lifestyle interventions, and relative safety of statin medications, a pragmatic approach might support a more proactive approach to primary prevention statin prescription in this cohort of patients.

Although statins are recommended for patients with ID and high CVD risk, there is a lack of research on their use in this population.[5] We found that 17% of patients with ID were prescribed statins. As well as elevated CVD risk, other standalone indications for statin therapy include type 1 DM, CKD, low-density lipoprotein (LDL) cholesterol ≥190 mg/dL and established CVD.[14] Although our study design did not allow thorough analysis of all statin indications, we found four patients with CKD and one with type 1 DM who were not prescribed statins, further supporting the idea that ID patients may be an undermanaged cohort with elevated CVD risk.

Key messages

- Elevated cardiovascular disease (CVD) risk was common in this intellectual disability (ID) population
- More than half of patients with elevated QRISK-3 were not on the medical treatment recommended by national guidelines
- QRISK-3 assessment is feasible in the outpatient setting
- Increased routine CVD risk assessment and management could help reduce morbidity and mortality in the ID population

Limitations and implications

First, this was a relatively small, single-centre study of patients with ID under the care of a tertiary-level psychiatry outpatient clinic. Generalisability to other healthcare settings may, therefore, be limited. Second, there may be a selection bias. Patients enrolled may be more likely to have other psychiatric diagnoses, and, therefore, prescribed psychotropic medications, than ID patients in other healthcare settings, therefore, perhaps increasing their CVD risk. Third, despite searching multiple databases, some patients had missing data – particularly smoking status and family CVD history. However, because the QRISK-3 score largely contains adverse rather than protective factors, missing data will likely lead to an underestimation of CVD risk. Finally, we did not explore whether lifestyle measures had been formally attempted in those with elevated CVD risk, and could not identify if previous CVD assessments had been performed. Patient adherence with prescribed medications was also not assessed.

Conclusion

In summary, QRISK-3 CVD risk assessment

can be feasibly implemented in the outpatient setting for psychiatry patients with ID. Based on our data, CVD risk is increased in this population, and primary prevention strategies may be under-utilised

Conflicts of interest

None declared.

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Study approval

Given that QRISK assessment is included in national NICE guidelines, ethical approval was exempt according to the Health Research Authority. However, local governance approval was obtained for this project.

Data availability

The data that support the findings of this study are available from the senior author, BP, upon reasonable request. The supplementary tables are available online: https://bjcardio.co.uk/wp-content/uploads/2021/11/Ho-Supplementary-Material-BJC.docx

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