

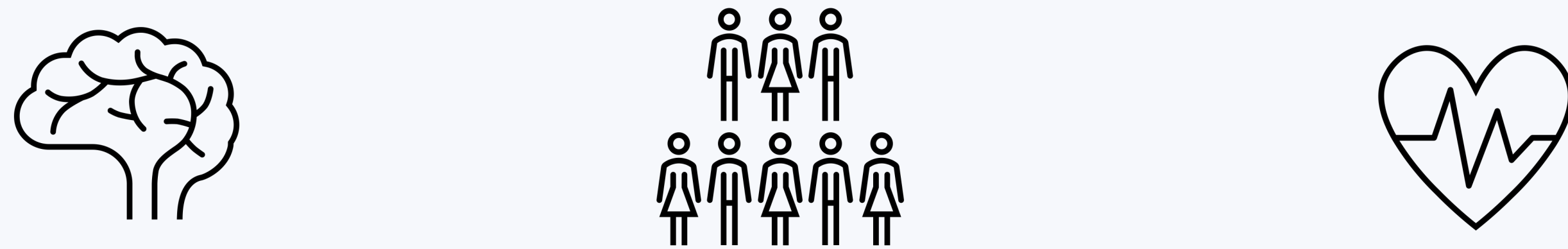
Incidence of cardiovascular disease in women with PCOS: a cohort study of 75,142 UK Biobank participants

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Background

Polycystic ovary syndrome (PCOS) has been associated with cardiovascular risk factors, however, it remains unclear whether it is associated with greater risk of cardiovascular disease (CVD).



Methods

We conducted a cohort study on 75,142 women of reproductive age without cardiovascular disease when recruited to UK Biobank, of whom 15,747 had PCOS. The primary outcome was fatal and non-fatal events for ischemic heart and cerebrovascular disease. We constructed Cox regression analysis adjusted for confounders to estimate the magnitude of association between PCOS and incident events (fatal or non-fatal) for ischemic heart and cerebrovascular disease.

Results

Women were followed up for a mean of 11.1 years. The incidence rate of ischemic heart and cerebrovascular events was 1.92/1,000 person years in the PCOS population and 1.90/1,000 person years in women without PCOS. PCOS was associated with a higher risk of obesity, hypertension and type 2 diabetes. In the adjusted Cox regression model, PCOS was not associated with increased risk of incident events (fatal or non-fatal) for ischemic heart and cerebrovascular disease.

Characteristic	OR	[95% CI]	p-value
Obesity (BMI >30kg/m²)			
PCOS			<0.001
0	—	—	
1	1.88	[1.80, 1.96]	
High blood pressure			
PCOS			<0.001
0	—	—	
1	1.38	[1.33, 1.44]	
T2DM			
PCOS			<0.001
0	—	—	
1	1.92	[1.75, 2.11]	

Table 1 Odds ratios (OR) and 95% CI for prediction of obesity (BMI>30), high blood pressure and T2DM for women with PCOS compared with women without. Adjustment for age, ethnicity, smoking and deprivation index.

Fatal and non-fatal ischaemic heart and cerebrovascular events

	HR [95% CI]	p-value
Model 1: PCOS only	1.03 [0.91, 1.16]	0.66
Model 2: Model 1, plus age, smoking, deprivation index, ethnicity	1.08 [0.95, 1.22]	0.23
Model 3: Model 2 plus total cholesterol/HDL, SBP, T2DM	0.94 [0.83, 1.06]	0.15
Model 4: Model 3 plus BMI	0.90 [0.79, 1.02]	0.09

Table 2: Hazard ratios (HR) and 95% CI for PCOS for fatal and non-fatal ischaemic heart and cerebrovascular events. Adjusted and unadjusted results are presented referent to women without PCOS.

Conclusion

Although PCOS is strongly associated with cardiovascular risk factors such as obesity, high blood pressure and type 2 diabetes, this did not translate into higher risk of ischemic heart and cerebrovascular events. Further research is warranted to determine whether this is true across different subtypes of PCOS or in menopausal women with a history of PCOS.