Increased risk of incident atrial fibrillation in young adults with mental health disorders: a nationwide population-based study

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**Background:** Mental health disorders and cardiovascular diseases are closely associated. The impact of mental health disorders on cardiovascular disease risk could be related to associated smoking, high blood pressure, and high cholesterol. Despite shared risk factors, there remains a paucity of information on incident atrial fibrillation (AF) incidence in patients with mental health disorders.

**Purpose:** To assess the association between mental health disorders and the risk of AF, especially amongst young adults aged 20 to 39 years.

**Methods:** Using the Korean National Health Insurance database between 2009 and 2012, we identified young adults aged 20 to 39 years without a history of AF and who have been diagnosed with mental diseases. Mental health disorders were defined as having one of the following diagnoses: schizophrenia (ICM-10 code F20), bipolar disorder (ICM-10 codes F30, F31), depression disorder (ICM-10 codes F32, F33), insomnia (ICM-10 codes G470, F510), and anxiety disorder (ICM-10 codes F40, F41). The primary outcome was new-onset AF during follow-up. We compared the risk of AF between those with mental health disorders and those without.

**Results:** A total of 6,576,582 people between the ages of 20–39 years old (mean age, 30.9±5.0 years; male, 59.6%) were included in this study. Among the total population, 668,683 patients (10.2%; mean age, 31.4±5.0 years; female, 53.9%) were diagnosed with mental health disorders: schizophrenia 7,575 (1.1%), bipolar disorder 10,956 (1.6%), depression disorder 184,061 (27.5%), insomnia 173,365 (25.9%), and anxiety disorder 413,914 (61.9%). During a 7.4±1.1 year of median follow-up, 8,932 AF events occurred (1,235 in those with mental health disorders and 7,697 in those without). Patients with mental health disorders showed a higher AF incidence than those without (25.4/100,000 PY vs. 17.7/100,000 PY). After adjusting with multivariate variables, patients with mental health disorders still showed a significantly higher risk of AF (Hazard ratio (HR) 1.507, 95% confidence interval (CI) 1.418–1.601). When analyzed according to each mental health disorder, patients with bipolar disorder or schizophrenia had 2 times higher risk of AF (HR 2.105, 95% CI 1.461–3.031; and HR 2.006, 95% CI 1.307–3.079, respectively), and those with depression, insomnia and anxiety showed an approximately 50% higher risk of AF compared to those without mental health disorders (HR 1.553, 95% CI 1.397–1.727; HR 1.635, 95% CI 1.47–1.818; and HR 1.478, 95% CI 1.372–1.592, respectively).

**Conclusions:** Young adults diagnosed with mental health disorders, i.e. depression, insomnia, anxiety, bipolar disorder, or schizophrenia are associated with a higher risk of incident AF. Awareness and screening for AF in these high-risk populations should be considered.