Smoking, alcohol consumption increase lifetime risk of atrial fibrillation

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Lifetime risk is a useful method to quantify risk of atrial fibrillation over a person's lifetime. However, data are scarce with respect to the lifetime risk of atrial fibrillation in the presence of one or multiple risk factors such as obesity and smoking.

Now, a new study co-authored by Boston University School of Public Health (BUSPH) researchers found that among individuals aged 55 years or older, the overall lifetime risk of atrial fibrillation (AF) was 37 percent and was influenced by the burden of risk factors.

The study was published in *The BMJ*.

"We examined the lifetime risk of atrial fibrillation, which measures the cumulative risk of developing a disease during the remainder of an individual's life," says co-author Ludovic Trinquart, assistant professor of biostatistics at BUSPH. "It is essential to look at lifetime risks in addition to short-term risks, because it may enable early identification of individuals at higher long-term risk and facilitate lifestyle change counseling."

The number of individuals with atrial fibrillation has been projected to rise to about 12 million to 15 million by 2050 in the United States. This increase is linked to the global increase in life expectancy. Established risk factors for developing atrial fibrillation within 10 years include cigarette smoking, alcohol misuse, hypertension, obesity, diabetes, myocardial infarction, and heart failure. However, prior research has provided little insight on the lifetime risk of atrial fibrillation.

"By contrast with the relative risk of atrial fibrillation, lifetime risk is an easy way for clinicians to communicate future risk of atrial fibrillation to individuals," the authors wrote. "Estimating the lifetime risk of atrial fibrillation in various subgroups with one or multiple elevated or borderline-elevated risk factors might also help to design preventive strategies."

The researchers assessed 5,338 participants from the Framingham Heart Study who did not have atrial fibrillation at one or more of the index ages of 55, 65, and 75 years. They identified smoking, alcohol

consumption, body mass index, blood pressure, diabetes, and history of myocardial infarction or heart failure at an index age as risk factors. Then, they categorized risk factor burdens as optimal (all risk factors were optimal), elevated (at least one risk factor elevated), and borderline, and compared the lifetime risk estimates according to those levels of risk factor burden.

Risk factors present at index age 55 years considerably influenced lifetime risk. An optimal risk factor profile was associated with a lifetime risk of atrial fibrillation of 23 percent. Lifetime risk rose to about 34 percent in individuals borderline risk profile, and to 38 percent in individuals with an elevated risk factor.

The authors emphasized that preventive efforts to reduce the disease burden should target modifiable borderline and elevated risk factors.

"Studying atrial fibrillation is important because it is emerging as a global epidemic; it also imposes considerable socioeconomic burden. Atrial fibrillation hospitalizations follow an exponential increase and have surpassed heart failure admissions," Trinquart says. "Moreover, atrial fibrillation is associated with increased risks of stroke, dementia, myocardial infarction, heart failure, and premature death. Primary prevention remains largely untapped for improving AF management."

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