Mass screening for atrial fibrillation does not prevent stroke in older adults, research finds

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Mass screening for atrial fibrillation using ECG together with heart failure biomarker does not prevent ischemic stroke or systemic embolism (blood clot) in older adults aged 75–76 years over 5 years

follow-up, according to late breaking research presented in a Hot Line Session at this year's ESC Congress 2024 in London, UK (30 Aug–2 Sept). However, the biomarker may improve the prediction of which individuals have a low risk for ischemic stroke and systemic embolism beyond single-lead ECG in older adults undergoing mass screening for AF.

"Our findings do not support this way of systematic screening for atrial fibrillation in older adults, but they indicate that it may be safe not to concentrate screening efforts at those individuals with low levels of NT-proBNP, but this needs confirmation in further studies," said lead author Dr. Katrin Kemp Gudmundsdottir at the Karolinska Institutet, Stockholm, Sweden.

She explained, "Individuals with a low biomarker level ran a lower risk of both developing atrial fibrillation during the 5-year follow-up as well as stroke or systemic embolism compared to both the control group and individuals with higher biomarker levels."

At least 40 million people worldwide have AF, a type of irregular heartbeat that leads to blood clots in the heart, and increases the risk of stroke, heart failure, and premature death.

People with AF are five times more likely to have a stroke, and the stroke is more likely to be debilitating with a lower chance of surviving, but around 30% have no AF symptoms, underscoring the urgent need to identify people with this potentially dangerous heart rhythm.

Internationally, most AF guidelines recommend opportunistic screening for AF in people aged 65 and older, and oral anticoagulant treatment for those at high stroke risk. The European Society of Cardiology also recommends systematic ECG screening to detect AF in patients aged 75 years or older, or those at high stroke risk.

Adding biomarkers could enhance screening accuracy. Research suggests NT-proBNP (N-terminal pro-B-type natriuretic peptide)—a marker of cardiovascular health—to be a strong predictor of incident AF and stroke.

In 2020, the baseline screening results of the STROKESTOP II trial showed that NTproBNP can be useful as a stratifying tool for screening of AF, and that those with elevated NTproBNP might benefit from more intensive screening.

The STROKESTOP II trial—a mass screening program of all 75–76-year-olds in the Stockholm region in Sweden—enrolled 28,712 people born between 1940 and 1941 to examine whether being invited for screening (both adults who came for screening and the ones that did not attend) would reduce the risk of thromboembolic events compared to the control group (not invited for screening).

Participants were randomized in a 1:1 ratio to either be invited to screening for AF (13,905) or a control group (13,884), after excluding those who died or emigrated. Of those invited to screening, 6,843 (49%) accepted the invitation (53% women).

Participants without previously known AF had blood samples taken and NTproBNP levels analyzed and were then stratified into high risk (NTproBNP 125 ng/L or higher) and low risk (less than 125ng/L) groups. They were then screened, based on NT-proBNP level, to either one time (low risk group) or more intensely (high risk group).

In the high risk group (3,743/6,288; 60%) screening was done at home with a handheld single-lead ECG device four times a day for two weeks, while in low risk participants (2,545/6,288) a single episode of screening was performed with a singleleadECG, but they did not undergo the two-weeks of intensive screening.

New AF was detected in 2.4% (165/6,843) of all participants who were offered oral anticoagulant treatment. Outcome data were collected from National Swedish Registries.

After a median follow-up of 5 years, no difference was noted in the risk of any stroke or clotting event between the intervention group (including both participants that came for screening and the ones invited but did not attend) and the control group.

Further sub-analyses found that the risk of stroke or blood clots was 41% lower among participants with low levels of the heart failure marker NTproBNP compared to the control group (0.61 vs. 1.03 events per 100 years at risk).

In the high risk group (with elevated levels of NTproBNP), individuals had more than double the risk of developing new atrial fibrillation in the 5 years, and the risk of ischemic stroke or systemic embolism was 57% higher than in the low risk group (0.95 vs. 0.61 events per 100 years).

Dr. Kemp Gudmundsdottir said, "Participation in the screening study was lower than expected and this could have hampered the results. Further studies are needed, and it seems reasonable to concentrate screening efforts on those at highest risk and potentially lower the incident of preventable strokes."

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