

Genetic Risk Score Associated With Atrial Fibrillation Detected by Insertable Cardiac Monitoring in High-Risk Patients: A REVEAL AF Trial Sub-Study

Background

- The results of the REVEAL atrial fibrillation (AF) trial demonstrated that an insertable cardiac monitor (ICM) could be helpful for diagnosing subclinical/silent AF in patients at high risk for the arrhythmic disorder, but without a previous diagnosis of AF.¹
- The REVEAL AF trial also demonstrated that age and body mass index (BMI), but not CHADS₂ score (a measurement of stroke risk) predict ICM-detectable AF.¹
- Previous studies showed that AF risk assessment can be improved by using an AF genetic risk score (AF-GRS) based on the risk associated with 12 single-nucleotide polymorphisms (SNPs).^{2,3}
- **Objective:** In this follow-up study of patients enrolled in the REVEAL AF trial, investigators evaluated whether the AF-GRS was predictive of incident AF identified by an ICM during a follow-up period of 18 to 30 months.

Methods

- The REVEAL AF trial enrolled 446 patients at high risk for developing AF; 234 provided informed consent for genetic evaluations and were included in this follow-up study.
- Patients were stratified into 5 AF-GRS quintile groups according to a previous population-based analysis: group 1 = lowest risk quintile; group 5 = highest risk quintile.
- Cox regression models were used to evaluate the association between AF-GRS and incident AF while controlling for potential confounding risk factors (age, sex, BMI).

Results

- The median follow-up period was 25 months.
- At 12 months, ICM-detected AF had occurred in 38.9% of patients in the highest AF-GRS quintile, compared to only 24.7% of patients in quintiles 1-4.
- After controlling for differences in age, sex, and BMI, the risk of incident AF was 1.8-fold (95% CI 1.0-3.3, $P < 0.05$) greater for patients in the highest AF-GRS quintile than for patients in the lowest quintile, and 2.1-fold (95% CI 1.2-3.4, $P = 0.005$) greater than for patients in quintiles 1-4 combined.

Conclusions

- Based on this study of patients in the REVEAL AF trial, the AF-GRS is predictive of incident ICM-detected AF, with patients in the highest AF-GRS quintile having approximately twice the risk compared to those in the lower quintiles.

Oral presentation at the American Heart Association Scientific Sessions, November 10-12, 2018, Chicago, IL

Authors

Atul Verma,¹ James A Reiffel,² Rolf Wachter,³ Peter R Kowey,⁴ Jonathan L Halperin,⁵ Bernard J Gersh,⁶ Mitchell SV Elkind,⁷ Carmen H Tong,⁸ Charles M Rowland,⁸ James J Devlin,⁸ Paul D Ziegler,⁹ Olga A Iakoubova⁸

Affiliations

¹ Southlake Regional Health Center, Newmarket, ON, Canada
² Columbia University Medical Center, New York, NY
³ University Hospital Leipzig, Leipzig, Germany
⁴ Lankenau Institute for Medical Research, Wynnewood, PA
⁵ Mount Sinai Medical Center, New York, NY
⁶ Mayo Clinic, Rochester, MN
⁷ Columbia University, New York, NY
⁸ Quest Diagnostics, San Juan Capistrano, CA
⁹ Medtronic Mounds View, MN

American Heart Association Scientific Sessions Chicago, IL

Date: Sunday, November 11, 2018
Time: 7:45-7:55 PM

Webpage

https://www.ahajournals.org/doi/10.1161/circ.138.suppl_1.12875

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