Oxidative Stress Markers Predict Atrial Fibrillation

(VA Reference No. 06-096)

Novel method for predicting onset or risk of atrial fibrillation by determining the presence of oxidative stress markers

Technology
Use of oxidative stress markers to predict onset or risk of atrial fibrillation

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Key Features
- Biomarkers identified could lead to a diagnostic assay used in clinical setting for prediction of atrial fibrillation
- Could be used to monitor and guide atrial fibrillation therapy
- Potential for higher sensitivity than current diagnostic method

Stage of Development
Reduced to practice with successful demonstration in a cross-sectional, case-control clinical study

Keywords
Diagnostic
- Biomarker
- Oxidative stress
- Atrial fibrillation

Patent Status
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Technology

The Department of Veterans Affairs has developed a method for predicting onset or risk of atrial fibrillation by determining the presence of an oxidative stress marker, such as glutathione, cysteine, and/or a derivative of a reactive oxidative metabolite.

Description

The identified biomarkers in this invention are the result of a study of human patients with persistent or permanent atrial fibrillation that revealed increases in certain oxidative stress markers in blood when compared to healthy controls. The data in the study suggest an association between oxidative stress and atrial fibrillation. In addition, the oxidative stress biomarkers appeared to have a stronger association with atrial fibrillation than the inflammatory biomarkers in the study.

Competitive Advantage

Performing a physical examination and obtaining an electrocardiogram typically make a diagnosis of atrial fibrillation.

This diagnostic method:

- Could lead to a diagnostic assay implemented at routine office visits in patients that are over 50 and not necessarily presenting with atrial fibrillation symptoms since symptoms are highly variable and are often not reported in routine checkups.
- Identifies patients at risk of atrial fibrillation and lead to early therapy preventing stroke or other cardiovascular complications.
- Could be used to monitor and further guide the anti-oxidant therapy.

Status

The Department of Veterans Affairs is looking for a partner for further development and commercialization of this technology through a license and the VA inventors are available to collaborate with interested companies through a Cooperative Research and Development Agreement (CRADA).