Current Models Do Not Predict Atrial Fibrillation Risk Accurately

In a study published in the *JAMA Cardiology*, Darbar and colleagues found that the risk prediction model for atrial fibrillation (AF) developed by investigators on the Heart and Aging Research in Genomic Epidemiology-Atrial Fibrillation (CHARGE-AF) trial does not accurately predict incidence of the condition.

Various risk models have been developed and are currently used to identify the patients at risk for atrial fibrillation. They aim at reducing the risk for stroke, heart failure and death from atrial fibrillation. The question is whether these widely-accepted prediction models are effective when applied to electronic medical records (EMRs). Professor Dawood Darbar, chief of cardiology at the University of Illinois Hospital & Health Sciences System, closely worked with a team of researchers and physicians in order to address this issue. "A number of atrial fibrillation risk prediction models have been developed but this is the first study that has attempted to validate them in the EMR setting," Professor Danbar told HealthManagement.org.

The aim of the study was to assess the effectiveness of the AF risk prediction model originally developed by the CHARGE-AF investigators using a large repository of EMRs. For this purpose, the deidentified EMRs of 33, 494 individuals, who were 40 years or older (median age=57 years), white (85.7%) or African American (14.3%), and had no history of AF were analysed. The participants were followed up for incident AF from 31-12-2005 until 31-12-2010. The CHARGE-AF Cox proportional hazards model regression coefficients were then applied to the EMR cohort.

The results showed that the CHARGE-AF risk model under-predicted AF incidence among low-risk subjects and over-predicted AF incidence among high-risk subjects. The findings of the current study reveal the challenges of applying a predictive model developed in prospective cohort studies to an EMR setting. It also emphasises the need for the development of more reliable prediction models that would identify AF risk early and accurately and thus prevent high mortality rates in high-risk AF patients.

Professor Danbar explains that "the CHARGE-AF risk model was primarily developed in a white population, although a number of African American subjects were included in the model; "Our goal at the University of Illinois at Chicago is to validate the CHARGE-AF risk model in our ethnically diverse population, which includes African Americans, Hispanic Americans and Asian Americans, using our EMR," he says. He further elaborates on this point: "Should the validation be poor, then [we should] develop a new atrial fibrillation risk model that is specific for our patient population. Some of the limitations discussed in the article related to data quality and completeness of data capture may be overcome with the standardisation of data entry which is likely to occur as EMRs become more ubiquitous."

Source : *JAMA Cardiology*

Published on : Mon, 17 Oct 2016