

European Sudden Cardiac Arrest network explores gender-based prevention and treatment

March 19 2018

19 March 2018: Researchers will use a European network of 90,000 patients to explore different approaches to prevention and treatment of sudden cardiac arrest for men and women, they announced today during a workshop on sex and gender differences at EHRA 2018.

The European Sudden Cardiac Arrest network (ESCAPE-NET) is backed by the European Heart Rhythm Association (EHRA), a branch of the European Society of Cardiology (ESC), and the European Resuscitation Council (ERC).

Sudden cardiac [arrest](#) is the consequence of a [heart rhythm disorder](#) called [ventricular fibrillation](#). It is deadly within minutes if left untreated and survival rates are just 5-20%.

ESCAPE-NET has pooled the patient populations of 16 organisations across Europe. The resulting database of sudden cardiac arrest in the community is sufficiently large to study causes, treatments and prevention strategies, and how these vary between [women](#) and men.

The electrical properties of the heart differ between men and women. The heart beats by an electrical conduction system in which ions (electrically charged molecules such as potassium) move back and forth across channels in the membranes of heart cells. Women have fewer potassium channels than men.

Commonly prescribed drugs that work by blocking ion channels can increase the risk of ventricular fibrillation and sudden cardiac arrest. For potassium channel blockers, such as selective serotonin reuptake inhibitors (SSRIs) for depression, antibiotics including erythromycin, antifungal medications, and domperidone, the increased risk of sudden cardiac arrest may be larger in women.

"Doctors want to know when these drugs can be safely prescribed in women," said Dr Hanno Tan, ESCAPE-NET project leader and cardiologist, Academic Medical Centre, Amsterdam, The Netherlands.

One of the aims of ESCAPE-NET is to create a risk score that includes age, sex, comorbidities and genetic profile. Doctors will be able to use the score to determine the risk, for example, of prescribing erythromycin for a female patient.

Dr Tan said: "We think that sudden cardiac arrest is caused by the interaction of various risk factors. Our research will uncover which factors are relevant in women and men and use this information to develop a risk score."

There is also evidence that women are more likely to die from sudden cardiac arrest than men because they are less likely to be resuscitated by a bystander. This appears to be due to sociological factors rather than biological sex. For example, women are more likely to be living alone because they have outlived their spouse.

ESCAPE-NET will identify specific reasons for differences in survival between men and women and which factors might be changed.

Dr Tan said: "The major strength of ESCAPE-NET is the large number of patients. These cohorts are normally very difficult to collect because [sudden cardiac arrest](#) occurs quickly."

ESCAPE-NET is funded by a European Union Horizon 2020 grant.

Provided by European Society of Cardiology

Citation: European Sudden Cardiac Arrest network explores gender-based prevention and treatment (2018, March 19) retrieved 26 April 2024 from

<https://medicalxpress.com/news/2018-03-european-sudden-cardiac-network-explores.html>

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