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STUDY

Association between combat-related traumatic injury and cardiovascular risk

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What is the ADVANCE Study?

The ADVANCE Study investigates the physical and psycho-social outcomes of battlefield casualties in the long-term. The study has 1,145 participants who served in the Afghanistan War of 2002-2014. Half of the participants have sustained serious battlefield injuries, and the other half are the control group of non-injured servicemen. The participants attend 6 study visits over a 20-year period.

What does this piece of ADVANCE research look at?

Until now, the relationship between combat-related traumatic injury and future risk of developing cardiovascular disease, such as heart attack and stroke, has been uncertain. ADVANCE is the first study to look at this relationship on a relatively large scale and over a long period of time. This publication describes the first cardiovascular risk findings from ADVANCE baseline data analysis - data that was collected during each participant's first ADVANCE visit. The paper looks at the relationship between combat-related traumatic injury and two indicators of cardiovascular risk: metabolic syndrome and arterial stiffness.

Metabolic syndrome and arterial stiffness

Metabolic syndrome is a cluster of conditions such as increased blood pressure, excess body fat around internal organs such as the liver (visceral fat), high blood sugar, low levels of HDL (good cholesterol), and abnormal blood fats and triglyceride levels. If you have a combination of these conditions, it increases your risk of developing type 2 diabetes and cardiovascular disease. Arterial stiffness is an indication of how 'stiff' your main arteries are. Increased arterial stiffness is linked to increased risk of cardiovascular disease.



What do the results show?

The results show that the occurrence of metabolic syndrome and arterial stiffness was higher in the injured group compared to the non-injured. This wasn't explained by differences in age or service rank between the two groups. However, these differences are not great enough to warrant any medical treatment at this stage, and these factors will be monitored in all participants over the course of the study.

Summary of the findings

- The notable differences between the injured and non-injured were higher waist circumference, higher triglycerides and lower HDL cholesterol in the injured group.
- There were no differences between the injured and uninjured groups in blood sugar or blood pressure.
- Arterial augmentation index – which is one of the main measures of arterial stiffness – was marginally, but significantly, greater in the injured group compared to the uninjured group. However, another measure of arterial stiffness, known as pulse wave velocity, was no different in the two groups.
- Worse injury severity, lower age and lower socioeconomic status were also shown to be associated with higher incidence of metabolic syndrome and arterial stiffness.

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