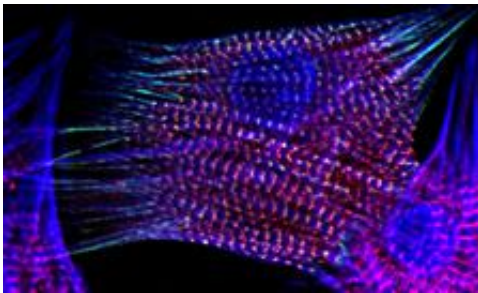


People with significant heart disease less able to cope with mental stress

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Healthy heart muscle, Image courtesy of British Heart Foundation

Mental stress could put heart disease patients at increased risk of a dangerous event, such as a heart attack, according to research carried out at King's College London and St Thomas' Hospital, and presented at the British Cardiovascular Society (BCS) Conference in Manchester today.

Observational studies on large populations have linked the acute mental stress caused by earthquakes or the World Cup with increased heart attacks and other adverse cardiac events. In contrast in patients with known coronary heart disease (CHD) and stable angina exercise is generally safe and likely beneficial.

The study, funded by the British Heart Foundation (BHF) looked at 15 people with significant CHD and 11 people without significant CHD. The study volunteers underwent tests to trigger mental stress whilst the

blood pressure and speed of blood flow inside the coronary arteries supplying blood to the heart were measured.

The researchers saw an increase in heart rate and blood pressure during mental stress testing reflecting an increase in oxygen demand by the heart muscle. Surprisingly in people with CHD blood flow in the coronary arteries did not increase to meet that demand. The researchers saw an increased inability of the blood to flow through the small blood vessels in the heart.

There are 2.3 million people living with CHD in the UK and these findings suggest that, for those people in particular, mental stress is not benign. Now the researchers know how it can affect the heart, studies can be carried out to find treatments to counteract the effect of mental stress and reduce the risk of potentially deadly heart problems.

Dr Satpal Arri, BHF Research Fellow at King's College London and Cardiology Registrar at Guy's and St Thomas' NHS Foundation Trust, who led the study supervised by Professor Simon Redwood, said:

"These preliminary results show a clear association between mental stress and effects on the heart that are particularly concerning for people with coronary heart disease. Currently there are no specific treatments to counteract these effects, although current angina treatments such as beta-blockers, that reduce the body's stress response, may offer protection. Specific treatments for mental stress could come from this research in the future.

"In the short term, our findings suggest that it's important that doctors are aware that mental stress may pose a risk for some people with coronary heart disease so they can then advise and treat patients accordingly to minimise that risk."

Professor Jeremy Pearson, Associate Medical Director at the BHF, which funded the research, said:

"We've known for some time, in part through BHF-funded research, that mental stress can have indirect effects on the heart. But this study has shed some light on how mental stress could pose a risk to people with significant coronary heart disease and that it may have a different effect from exercise stress, which, in contrast, can be beneficial.

"Larger scale studies are needed to confirm this finding. However, during Euro 2016 it's likely that plenty of people will experience some mental stress and even more frustration. These findings emphasise that people with coronary heart disease should do what they can to minimise those stress levels once the tournament kicks off."

More information: BHF Cardiovascular Disease Statistics 2015.
Available online: www.bhf.org.uk/research/heart-statistics

UNRAVELLING THE MECHANISMS OF MENTAL STRESS
INDUCED MYOCARDIAL ISCHAEMIA:

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Provided by King's College London

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