Application number/Title: 43707 - Traditional and novel biomarkers of adverse cardiometabolic imaging, and associations with outcomes

Applicant PI: Ms Hanan Al-Ghibiwi

Applicant institution: University of Glasgow

Keywords provided by the Applicant PI to describe the research project:
aortic stiffness, cardiovascular disease, carotid intima media thickness, inflammation, lipids, statins

Application Lay Summary:
Cardiovascular diseases, such as heart attacks and stroke, are the leading cause of death worldwide. We understand that risk factors such as smoking, blood cholesterol, and blood pressure and important to manage to reduce your risk of getting a heart attack and stroke. What is less clear is the impact these things have on the actual organs such as blood vessels and the heart itself in the build up to getting cardiovascular disease.

In this study, we will investigate important changes that take place in the blood vessels and heart in participants in UK biobank. These changes were measured during the study assessment by MRI and by ultrasound. These images allow us to measure factors such as how thick participant's blood vessels are, how stiff their blood vessels are, and the dimensions of the chambers of their heart. There is lots of existing data to suggest that these changes occur in the build up to getting heart attacks and strokes, and might actually contribute to making them more likely. However, we are not really sure what risk factors are important in determining these tissue changes, and whether the risk factors are the same for all of them. We will then investigate how these changes in heart and blood vessels influences your risk of having a heart attack or a stroke.

We therefore plan to investigate how demographics, lifestyle, current health circumstances, and blood markers such as cholesterol might cause changes in the blood vessels and in the heart. By understanding this more clearly we may be able to develop new interventions, or to target existing interventions (such as blood pressure lowering or cholesterol lowering) to the people that need it most.