Circulating levels of MCP-1 and eotaxin are not associated with presence of atherosclerosis or previous myocardial infarction

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Currently there are many tests that may be carried out on a patient who is suspected of having heart disease. These range from relatively simple tests for cholesterol, through to coronary angiography. Each of these tests have their pros and cons. For example, testing your cholesterol is very simple, but gives only a very general idea of whether you may be at greater risk of having heart disease. In contrast, coronary angiography can determine the status of each of your coronary arteries, but requires a visit to hospital, together with considerable expertise and cost. Science is therefore always looking for a simple test that may give a more accurate measure of heart disease.

Over the past few years, it has been shown that a family of proteins in your blood, called chemokines, are involved in atherosclerosis, the disease process underlying heart disease. We investigated whether amounts of two of the chemokine family members were higher in the blood from patients with heart disease versus controls.

Blood samples from two groups of patients were investigated. The first group of subjects were from Sheffield. By using a questionnaire and their medical history we separated the subjects into two groups – those with suspected heart disease and controls. We found no difference in the levels of chemokines between the subjects with heart disease and those without heart disease. In the same group of subjects, we also measured the amount of narrowing in the arteries in the neck. This narrowing is indicative of increased atherosclerosis, and may be related to heart disease. There was no link between the levels of the chemokines and the extent of the narrowing.

Secondly, we measured levels of the two chemokines in blood samples from patients in the MaGiCAD study. Patients recruited into the MaGiCAD study have had a coronary angiogram. We therefore compared the levels of chemokines in the blood samples from patients with no coronary heart disease or from patients with more severe coronary heart disease. We found no difference in levels of chemokines between patients with differing severity of disease.

Finally, we examined the levels of chemokines in patients who had had a heart attack and patients that had not had a heart attack. Again, there was no difference in levels of chemokines in the two groups.

Overall, we found no differences in chemokines however we looked – in patients with a medical history of heart disease, in patients with narrowing of their neck arteries, in patients with coronary heart disease or in patients that had had a heart attack. We have therefore shown conclusively that chemokines cannot be used to identify patients with heart disease.