Could arthritis wonder drugs provide clues for all disease?

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Drugs that have helped treat millions of rheumatoid arthritis sufferers may hold the key to many more medical conditions, including atherosclerosis – a leading cause of heart disease – says the researcher who jointly invented and developed them.

Professor Marc Feldmann will tell scientists attending the 2008 Congress of European Pharmacological Societies (EPHAR) – hosted by the British Pharmacological Society – that drugs he and colleagues helped develop have already proved successful against other autoimmune diseases.

The drugs target proteins called cytokines, which are protein messaging molecules released by immune cells to alert the immune and other systems that the body is under attack from a pathogen and to initiate a protective counter-response against the infection.

"In autoimmune diseases, such as arthritis, we discovered that cytokines are over-produced causing the immune system to fight itself, resulting in inflammation and tissue destruction," said Professor Feldmann, from Imperial College London, who is speaking at the EPHAR 2008 conference at The University of Manchester this week.

"We further found that by blocking just one cytokine – Tumor Necrosis Factor (TNF) alpha – we were able to block all the cytokines involved in the inflammation, with remarkable clinical results."

The team's research led to the development of three anti-TNF alpha

drugs – infliximab, etanercept and adalimumab – which have had a dramatic effect on the symptoms of rheumatoid arthritis patients, protecting the joints from further deterioration in the vast majority of cases.

Blocking TNF alpha has had further success in treating several more chronic inflammatory conditions, including Crohn's disease, psoriasis, psoriatic arthritis, ankylosing spondylitis and ulcerative colitis.

But Professor Feldmann, Head of the Kennedy Institute of Rheumatology, believes similar drugs have the potential to treat many other medical conditions and will also tell the conference about his work on atherosclerosis, a disease affecting the arterial blood vessels, commonly known as 'hardening of the arteries', with his colleague Dr Claudia Monaco.

Their work, which has won a number of prestigious awards, has resulted in the emergence of a new branch of medicine – anti-cytokine therapy – and research elsewhere has showed promise in yet more conditions, including the potentially fatal acute alcoholic hepatitis.

Professor Feldmann said: "During the conference I will be discussing the potential therapeutic targets in tissue affected by atherosclerosis, which is caused by a chronic inflammatory response in the walls of the arteries, in large part, caused by an excessive immune response to cholesterol.

"I will also discuss whether it is possible – even likely – that cytokines play a critical role in all diseases involving multiple biological processes, thus providing therapeutic targets for all unmet medical needs."

Source: University of Manchester