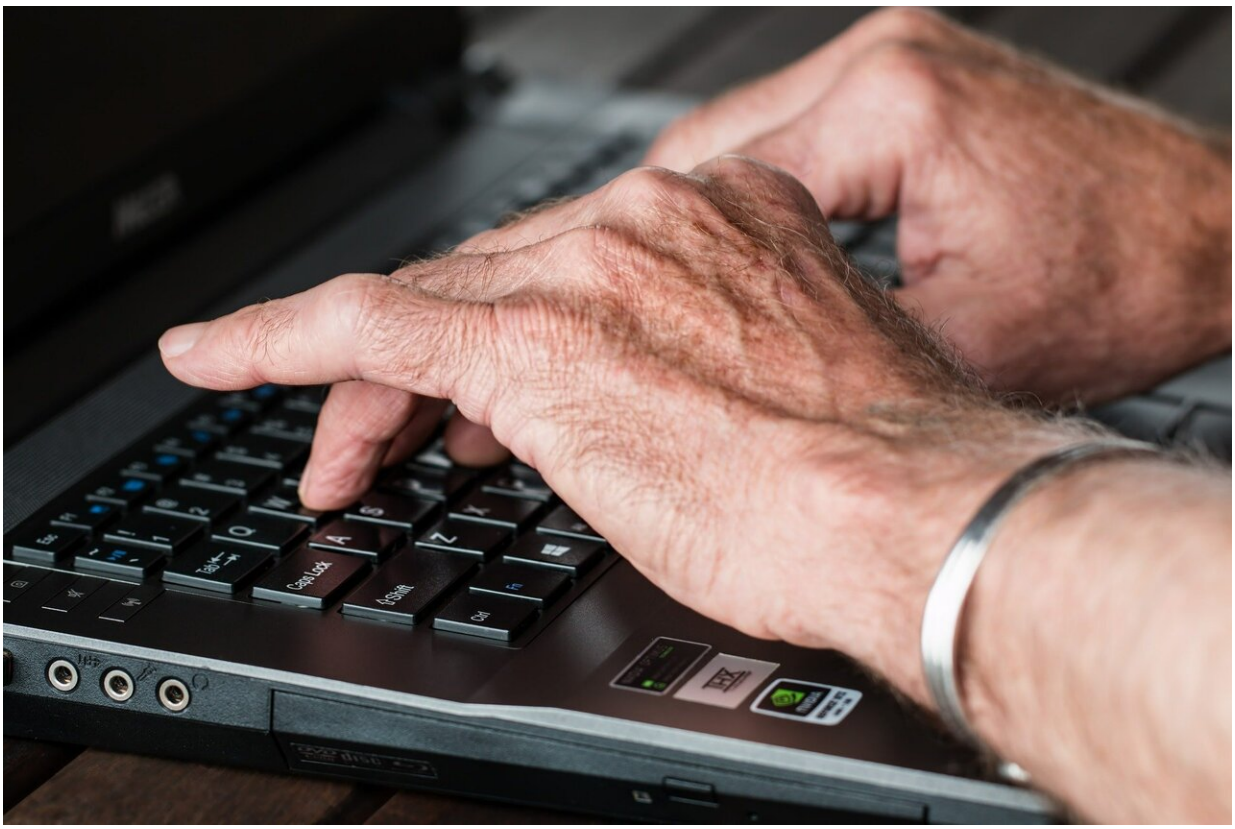
Arthritis drugs found to be effective in treatment of disease that causes deformity of the hand

July 13 2020



Credit: CC0 Public Domain

A condition which causes deformity of the hand—leading in the most severe cases to impairment and disability—can now be successfully

treated by using drugs developed in recent years for the treatment of different forms of arthritis, researchers at the University of Glasgow have found. Their findings are reported in the journal *Science Advances*.

Dupuytren's disease is a common and progressive fibroproliferative disorder of the hand, causing usually the little or ring finger to be pulled in towards the palm of the hand. The deformity can impair hand movement to the extent it limits daily activities severely, including self-care and employment, reducing health-related quality of life.

There are no approved treatments for the early stages of the disease and a high recurrence in late-stage disease when therapies including surgery and injection therapy which work for only a limited length of time.

Across the UK, the prevalence of the disease is approximately 20%. In Scotland the prevalence is much higher—40% of the population—and in Scandinavian countries, it affects around 30% of men over 60. This is because the disease is genetic; Scots are affected more than other parts of the UK because more people carry Celtic or Irish genes.

Now, however, a team led by Mr. Neal Millar, Clinical Senior Lecturer in Orthopedic Surgery in the University's Institute of Infection, Immunity and Inflammation, has discovered that two drugs developed in recent years for the treatment of different forms of arthritis can block the fibrotic response found in Dupuytren's disease.

The drugs are:

- Cytokine inhibitors which has been used successfully for treating rheumatoid and other forms of arthritis for around 15 years
- JAK inhibitors which became available around five years ago, and is also used for the treatment of inflammatory arthritis.

Mr. Millar said: "Our work using patient samples from Dupuytren's disease has discovered a key role for these drugs. We were able to reverse these fibrotic changes in human cells. Until now, there has been nothing out there for these patients."

The two arthritis drugs are licensed for use in the treatment of that disease but under drug regulations, they must undergo further testing for use in the treatment of a different disease.

Mr. Millar and his team have submitted a patent for the discovery of the new use of the drugs. They have also been awarded a grant from the MRC (Medical Research Council) EMINENT program to conduct experimental therapeutic trials which he anticipates could start in a year's time. All being well, the drugs could be cleared for use in Dupuytren's disease in two to three years' time.

A further potential use has also been uncovered as a result of the team's work on Dupuytren's disease. They have been able to take tissue from patients suffering from this disease to use as a surrogate for tests related to other fibrotic illnesses, such as lung and kidney fibrosis.

"One of the problems associated with these illnesses is the difficulty getting tissue from patients. We have been using tissue from Dupuytren's disease as a surrogate as we know the process of its development as happens in liver and kidney fibrosis. We believe that these drugs may also be effective in the treatment of other fibrotic diseases. This would offer a major breakthrough in the treatment of conditions which are life-threatening and affect hundreds of thousands of patients," said Mr. Millar.

More information: Moeed Akbar et al. Attenuation of Dupuytren's fibrosis via targeting of the STAT1 modulated IL-13Rα1 response, *Science Advances* (2020). DOI: 10.1126/sciadv.aaz8272

Provided by University of Glasgow