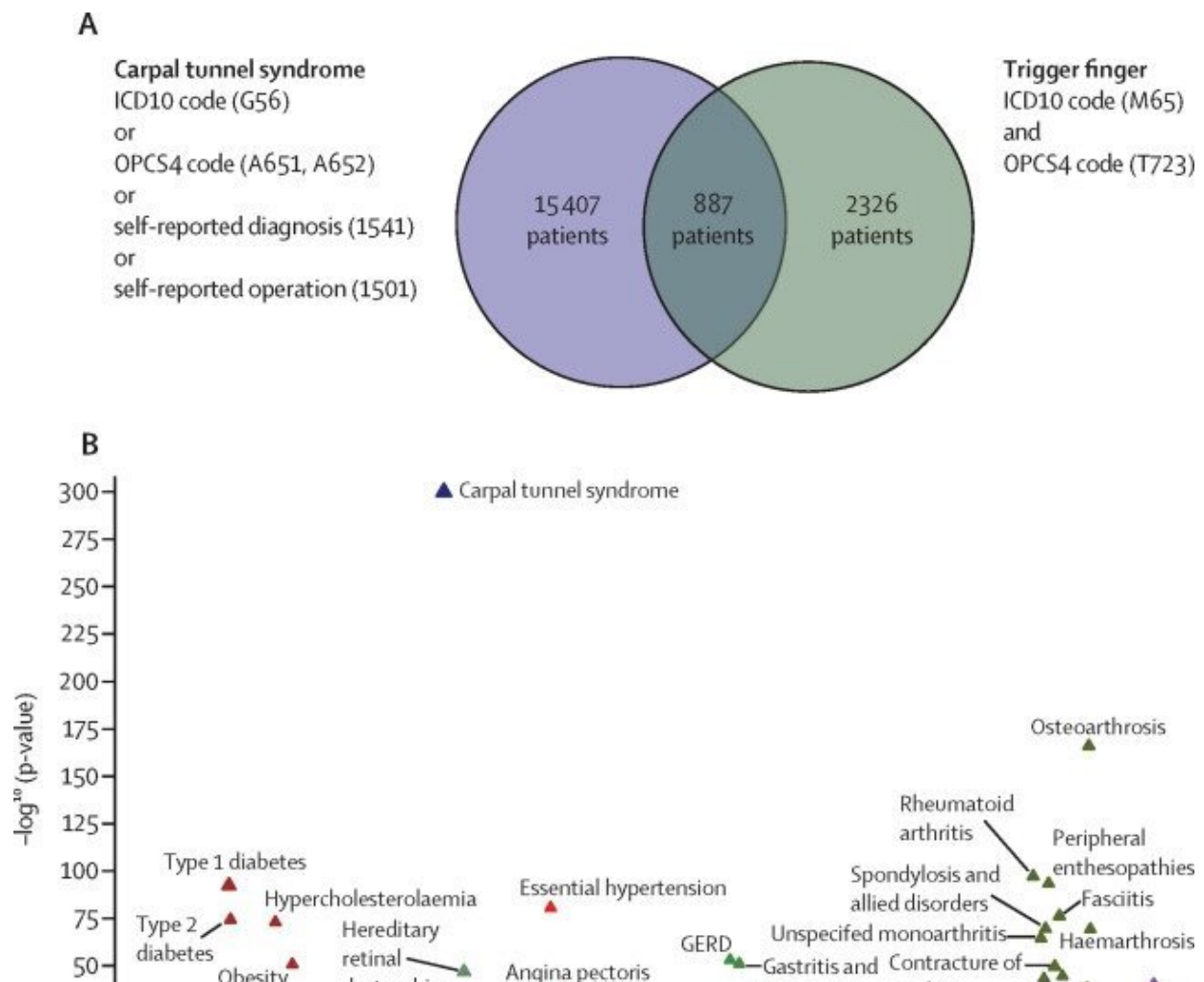


Gene variant links trigger finger and carpal tunnel syndrome

July 22 2022



Association between trigger finger and carpal tunnel syndrome. Data from UK Biobank. (A) Overlap between trigger finger and carpal tunnel syndrome in UK Biobank, annotated with the International Classification of Diseases (ICD)-10 codes and Office of Population Censuses and Surveys Classification of Surgical

Operations and Procedures (OPCS) codes that were used to define whether patients had carpal tunnel syndrome or trigger finger. (B) Phenome-wide association analysis, showing the association between trigger finger and 694 phenotypes that were derived from ICD10 coding in UK Biobank. The p-value refers to a Fisher's exact test, and the direction of the triangle reflects the direction of the effect. GERD=gastroesophageal reflux disease. Credit: *The Lancet Rheumatology* (2022). DOI: 10.1016/S2665-9913(22)00180-1

A new NDORMS study, published in *The Lancet Rheumatology*, has found a genetic variant that increases the risk of both carpal tunnel syndrome and trigger finger, and opens the door for new therapies that involve blocking the IGF-1 pathway.

Carpal tunnel syndrome (CTS) and trigger finger (TF) are the two most common diseases of the hand, accounting for over 60,000 operations per year in the U.K. alone, and large economic cost worldwide.

It is well known among hand surgeons that these two conditions often occur together, but the reason for this is unknown.

Dr. Akira Wiberg, NIHR clinical lecturer in [plastic surgery](#) and co-senior author of the study said, "We've known for a long time that trigger finger and carpal tunnel syndrome—two of the commonest hand diseases worldwide—frequently co-exist in patients, but the reason for this has remained unclear. We've shown for the first time that this co-occurrence can partly be explained by genetics."

The NDORMS researchers hypothesized that the co-occurrence of carpal tunnel syndrome and trigger finger may in part be explained by a shared [genetic predisposition](#). To test the theory, they performed a [genome-wide association study](#) (GWAS) of trigger finger in the U.K. Biobank, a population-based cohort of approx. half a million participants

from the U.K., and discovered five regions in the genome where sufferers of trigger finger carry, on average, different genetic variants from people who don't have trigger finger.

One of those genetic variants is the same variant that increases the risk of carpal tunnel syndrome, which the team previously discovered in their 2019 GWAS of carpal tunnel syndrome. The genetic variant allows for increased signaling through a [growth hormone](#) known as "Insulin-like Growth Factor 1," or IGF-1 pathway.

A Finnish population-based cohort called FinnGen was used to validate this finding—showing that the genetic variant that increases the risk of both carpal tunnel syndrome and trigger finger in the British cohort has the same effect in the Finnish cohort.

Dr. Wiberg continued, "We found a region in the DNA where sufferers of both diseases are more likely to carry the same genetic variant that ultimately results in increased signaling via the insulin-like [growth factor](#) 1 (IGF-1) pathway, providing new evidence that the growth hormone IGF-1 is likely to be a driver of both [carpal tunnel syndrome](#) and trigger finger. There are several potential ways of targeting the IGF-1 pathway with drugs or antibodies, which makes our finding particularly exciting."

Dominic Furniss, Professor of Plastic and Reconstructive Surgery, and, co-senior author said, "This has been a fantastic collaborative effort by our team in Oxford (NDORMS and the Nuffield Department of Clinical Neurosciences (NDCN) and our international colleagues at Cold Spring Harbor Laboratory in New York and The University of New South Wales in Australia."

"This research really illustrates the importance of understanding the biology that underlies common surgical diseases, which in turn paves the

way towards developing new treatments that will hopefully avoid patients needing to undergo surgery in the future."

More information: Benjamin Patel et al, Shared genetic susceptibility between trigger finger and carpal tunnel syndrome: a genome-wide association study, *The Lancet Rheumatology* (2022). [DOI: 10.1016/S2665-9913\(22\)00180-1](https://doi.org/10.1016/S2665-9913(22)00180-1)

Provided by University of Oxford

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