

Carpal Tunnel Syndrome, Bell's Palsy May Predate Diabetes Diagnosis

These two peripheral nerve disorders are common and easy to identify in primary care.

BY CONNI BERGMANN KOURY, EDITOR-IN-CHIEF

Carpal tunnel syndrome and Bell's facial palsy may predate a diagnosis of type 2 diabetes by up to 10 years, according to a study published in *Diabetes Care*.

Martin C. Gulliford, FRCP, and colleagues from King's College in London said that the frequency of carpal tunnel syndrome is increased in patients with peripheral neuropathy. The increase is from a variety of causes. "Abnormal glucose metabolism may be implicated in the etiology of idiopathic polyneuropathy in [patients] who do not have diabetes," the authors wrote. They undertook this investigation to see if the incidence of carpal tunnel syndrome, Bell's palsy and other peripheral nerve disorders is increased before diabetes diagnosis.

Dr. Gulliford and colleagues conducted a cohort study using a medical records database from family practices in England and Wales. Patients with diabetes were selected if their diagnosis date was between Nov. 1, 2003 and Oct. 31, 2004; if they were aged between 30 and 89 years at diagnosis; and if they had never been prescribed insulin or diagnosed with type 1 diabetes. The investigators then randomly selected two control groups of patients who were matched for age, sex and practice, from patients who were never diagnosed with diabetes or prescribed oral hypoglycemic drugs or insulin.

SEARCHED MEDICAL RECORDS

"Each person's medical record was searched for the first occurrence of carpal tunnel syndrome, including carpal tunnel release and carpal tunnel injection," they wrote.

They also identified new occurrences of Bell's facial palsy (See *Bell's Palsy Primer*) and other peripheral neuropathies.

There were 2,647 patients with prediabetes who were later diagnosed with diabetes in 2003 to 2004 and 5,294 matched control patients. The mean age of the cohort was 62.4 ± 13.1 years and slightly fewer than half were women. Dr. Gulliford and colleagues wrote that the mean duration of follow-up was 8.9 ± 1.7 years for prediabetes patients and 8.8 ± 1.7 years for control patients.

Among patients with prediabetes, the incidence of carpal tunnel syndrome was 425.1 per 100,000 person-years compared with 260.0 per 100,000 person-years among control patients (relative risk [RR] 1.63 [95% CI, 1.26-2.11], $P < .001$). The researchers found that after adjusting for known carpal tunnel syndrome risk factors, the RR was 1.36 (95% CI, 1.02-1.81, $P = .039$).

INCREASED INCIDENCE OF COMMON NEUROPATHIES

"The incidence of Bell's palsy in prediabetic [patients] was nearly twice that for control [patients]," Dr. Gulliford said. "This increased risk of Bell's palsy in prediabetic patients was not independent of elevated body mass index, which is itself a cause of prediabetes."

The investigators noted 85 incident cases of other peripheral nerve disorders, 29 in prediabetic patients and 56 in control patients (RR 1.02, [95% CI, 0.65-1.58], $P = .939$). They found only 20 cases of peripheral neuropathy, seven in prediabetic patients and 13 in controls. There were no cases of idiopathic progressive polyneuropathy.

In discussing the strengths and weaknesses of the study, Dr. Gulliford and colleagues wrote that while there was a large sample size and long duration of data collection, the relative rarity of the conditions resulted in small numbers of cases. Also, some of the clinical methods for case definitions are imprecise, such as the term *prediabetes*.

DISCUSSION

The current study found an increased incidence of carpal tunnel syndrome in patients with prediabetes, which is consistent with previous studies that have identified type 2 diabetes as a risk factor for carpal tunnel syndrome. "Previous studies, however, generally included cases with diabetes of long duration," they wrote. "The present study makes the novel observation that the incidence of carpal tunnel syndrome is increased from before the time of clinical diagnosis of diabetes when exposure to hyperglycemia will generally have been less prolonged and less severe."

Hyperglycemia and associated metabolic abnormalities may contribute to the cause of focal peripheral nerve disorders before the diagnosis of diabetes.

The authors also noted that adjustment for carpal tunnel risk factors such as obesity, a history of arthritis, wrist fracture and thyroid disease partially accounted for the increased risk in the patients with prediabetes. "While obesity is associated with increased risk of carpal tunnel syndrome, however, obesity is also a cause of hyperglycemia and is not a true confounder," Dr. Gulliford and colleagues pointed out.

Researchers concluded that their results show an increase in carpal tunnel syndrome and Bell's palsy, two common peripheral nerve disorders that may be easily recognized by primary care physicians.

"Hyperglycemia and associated metabolic abnormalities may contribute to causing these important focal peripheral nerve disorders before the diagnosis of diabetes," the authors wrote. ■

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Gulliford MC, Latinov R, Charlton J, Hughes RAC. Increased incidence of carpal tunnel syndrome up to 10 years before diagnosis of diabetes. *Diabetes Care*. 2006;29:1929-1930.

BELLS PALSY PRIMER

What is Bell's palsy?

Bell's palsy is a form of temporary facial paralysis resulting from damage or trauma to one of the two facial nerves. It is the most common cause of facial paralysis. Generally, Bell's palsy affects only one of the paired facial nerves and one side of the face, however, in rare cases, it may affect both sides.

Symptoms of Bell's palsy usually begin suddenly and reach their peak within 48 hours. Symptoms range in severity from mild weakness to total paralysis and may include twitching, weakness or paralysis, drooping eyelid or corner of the mouth, drooling, dry eye or mouth, impairment of taste and excessive tearing in the eye. Bell's palsy often causes significant facial distortion. Most scientists believe that a viral infection such as viral meningitis or herpes simplex causes the disorder when the facial nerve swells and becomes inflamed in reaction to the infection.

Is there any treatment?

There is no cure or standard course of treatment for Bell's palsy. The most important factor in treatment is to eliminate the source of the nerve damage. Some cases are mild and do not require treatment since the symptoms usually subside on their own within 2 weeks. For others, treatment may include medications such as acyclovir combined with an antiinflammatory drug such as prednisone to reduce inflammation and swelling. Analgesics such as aspirin, acetaminophen or ibuprofen may relieve pain, but because of possible drug interactions, patients should always talk to their physicians before taking any over-the-counter medicines. Generally, decompression surgery for Bell's palsy is controversial and is seldom recommended.

What is the prognosis?

The prognosis for individuals with Bell's palsy is generally very good. The extent of nerve damage determines the extent of recovery. With or without treatment, most individuals begin to get better within 2 weeks after the initial onset of symptoms and recover completely within 3 to 6 months.

Source: National Institute of Neurological Disorders and Stroke, www.ninds.nih.gov/disorders/bells/bells.htm.