First large-scale study of pain reveals risk factors

November 10 2011

Millions of Americans are affected by painful jaw problems known as TMD, temporomandibular disorders, but predicting who is at risk has been extremely difficult.

Now, for the first time, researchers in the University at Buffalo School of Dental Medicine are publishing a comprehensive set of clinical characteristics that they say will lead to the ability to identify individuals at risk for developing the painful conditions. Their new clinical assessments will help researchers and clinicians better understand TMD and other pain conditions, so as to find ways to better manage and treat them.

Published in the November issue of the *Journal of Pain*, the UB research results are part of the Orofacial Pain Prospective Evaluation and Risk Assessment (OPPERA) study, available at http://www.jpain.org/issues?issue_key=S1526-5900(11)X0013-5, which followed 3,200 initially pain-free individuals for three to five years. It is the largest clinical study of pain conditions and how they develop that has ever been done.

The UB researchers, led by Richard Ohrbach, DDS, PhD, associate professor of oral diagnostic sciences in the UB School of Dental Medicine, have been studying pain and TMD for several decades. Ohrbach is the lead author on the paper.

"The UB role in the project was to develop well-designed examination

procedures to help dentists and other health care providers identify risk factors for TMD," says Ohrbach.

Ohrbach and his co-authors studied 71 different clinical variables in 1,633 controls -- individuals who never had TMD -- and in 185 people with chronic painful TMD. They assessed the individuals through lengthy questionnaires about health histories and current symptoms and through clinical exams. Participants were from Western New York, Maryland, North Carolina and Florida.

The UB researchers found that a very high rate of the variables they assessed, 59 out of 71, were significantly associated with painful TMD. "Our results indicate that individuals with TMD differ substantially from the controls across almost all of the variables we assessed," says Ohrbach.

TMD sufferers tended to have significantly higher levels of the following variables: trauma to the jaw, non-pain symptoms in the facial area, jaw locking and noises, and pain during such jaw movements as chewing, smiling or talking. Ohrbach notes that while the last two findings were clearly expected, very little has been known about the first two findings.

In particular, the UB researchers found that TMD sufferers reported a much higher rate of neural and sensory medical conditions, such as earaches, tinnitus or hearing loss, fainting and dizziness, as well as seizures due to epilepsy and other conditions.

Ohrbach said that the study also confirmed many findings that long have been associated with TMD but which have not, until now, been proven in a comprehensive, large-scale study.

Among these is the finding that any pain disorder, such as headache,

backache and abdominal pain, is more likely to occur in TMD patients than in people who do not have TMD.

"Why are other pain disorders more common in people with TMD?" asks Ohrbach. "Is it because those pain conditions predispose them to develop TMD or do they develop TMD first and does TMD lead them to then develop other pain disorders?"

To answer these and other related questions, Ohrbach says he and his colleagues will next look at comorbidity.

"We'll be tracking these multiple pain disorders over time with particular variables," he says.

Ultimately, the findings of the UB researchers and their colleagues on the OPPERA study will be geared toward a better understanding of pain conditions in general.

"How do we understand the pain? How do we establish a reliable and clinically useful marker of pain so that significant pain can be more readily diagnosed?" asks Ohrbach. "To answer these questions, we need to have a model that puts all of the pieces together, that takes the findings from a clinical exam, puts it into a rigorous framework using the right assessment and diagnosis tools in order to chart the nature of multiple physical disorders so that we can ultimately understand how the pain is affecting the individual."

Provided by University at Buffalo