

The effect of catastrophizing and depression on chronic pain – a prospective cohort study of temporomandibular muscle and joint pain disorders

Ana Miriam Velly^{a,b,c,d,*}, John O. Look^a, Charles Carlson^e, Patricia A. Lenton^a, Wenjun Kang^f, Christina A. Holcroft^c, James R. Friction^{a,f}

^a Department of Diagnostic and Biological Sciences, School of Dentistry, University of Minnesota, Minneapolis, MN, USA

^b Faculty of Dentistry, McGill University, Montreal, QC, Canada

^c Centre for Clinical Epidemiology and Community Studies, Jewish General Hospital, Montreal, QC, Canada

^d Department of Dentistry, Jewish General Hospital, Montreal, QC, Canada

^e Department of Psychology, University of Kentucky, Lexington, KY, USA

^f Institute for Health Informatics, University of Minnesota, Minneapolis, MN, USA

Sponsorships or competing interests that may be relevant to content are disclosed at the end of this article.

ARTICLE INFO

Article history:

Received 27 June 2010

Received in revised form 7 May 2011

Accepted 8 July 2011

Keywords:

Temporomandibular muscle and joint disorders

Pain

Chronic pain

Risk factors

Catastrophizing

Depression

ABSTRACT

Although most cases of temporomandibular muscle and joint disorders (TMJD) are mild and self-limiting, about 10% of TMJD patients develop severe disorders associated with chronic pain and disability. It has been suggested that depression and catastrophizing contributes to TMJD chronicity. This article assesses the effects of catastrophizing and depression on clinically significant TMJD pain (Graded Chronic Pain Scale [GCPS] II–IV). Four hundred eighty participants, recruited from the Minneapolis/St. Paul area through media advertisements and local dentists, received examinations and completed the GCPS at baseline and at 18-month follow-up. In a multivariable analysis including gender, age, and worst pain intensity, baseline catastrophizing (β 3.79, $P < 0.0001$) and pain intensity at baseline (β 0.39, $P < 0.0001$) were positively associated with characteristic of pain intensity at the 18th month. Disability at the 18-month follow-up was positively related to catastrophizing (β 0.38, $P < 0.0001$) and depression (β 0.17, $P = 0.02$). In addition, in the multivariable analysis adjusted by the same covariates previously described, the onset of clinically significant pain (GCPS II–IV) at the 18-month follow-up was associated with catastrophizing (odds ratio [OR] 1.72, $P = 0.02$). Progression of clinically significant pain was related to catastrophizing (OR 2.16, $P < 0.0001$) and widespread pain at baseline (OR 1.78, $P = 0.048$). Results indicate that catastrophizing and depression contribute to the progression of chronic TMJD pain and disability, and therefore should be considered as important factors when evaluating and developing treatment plans for patients with TMJD.

© 2011 International Association for the Study of Pain. Published by Elsevier B.V. All rights reserved.

1. Introduction

Temporomandibular muscle and joint disorder (TMJD) pain is common, occurring in about 10% of the general population [13]. Most TMJD symptoms are mild in nature, fluctuate over time, and do not constitute a disability to the patient [22,31]. Some individuals with TMJD pain, however, will progress to chronic TMJD pain that involves disability and negative consequences [21]. Interestingly, prospective cohort studies [32] have found that the presence of depression predicts the onset of TMJD pain within 3 years. Furthermore, it is estimated that almost 50% of persistent pain patients have significant symptoms of depression [25].

* Corresponding author. Address: Centre for Clinical Epidemiology and Community Studies, Jewish General Hospital, 3755 Chemin de la Côte Ste-Catherine, Suite H-485, Montréal, QC, Canada, H3T 1E2.

E-mail address: ana.velly@mcgill.ca (A.M. Velly).

It has been suggested that the level of depressive symptoms in the context of pain may be mediated by cognitive factors [19]. Catastrophizing is one cognitive factor that involves an exaggeration or magnification of the perceived threat of pain sensations [26]. Catastrophizing has been associated with higher affective ratings of pain [8,10,24,27], depressive symptoms [2,15], and general affective distress [14].

Although the relationship between TMJD pain, depression, and catastrophizing has been demonstrated, it is not yet clear how these psychological conditions contribute to the perpetuation of TMJD pain. The primary aim of this cohort study was to evaluate the effect of catastrophizing and depression on progression of pain and disability among patients with TMJD pain at the 18-month follow-up using the Graded Chronic Pain Scale (GCPS) [33]. The secondary aim was to identify the contribution of these psychological factors on clinically significant pain as identified by the GCPS [33].

2. Methods

2.1. Study design and study outcomes

In order to address the aim of this study, we conducted a prospective cohort study with 2 steps: first, we assessed the effect of baseline catastrophizing and depression on the progression of pain intensity and disability scores in TMJD pain patients at the 18-month follow-up. Second, we assessed the effect of catastrophizing and depression on the onset and the progression of clinically significant pain.

Clinically significant pain was defined according to the GCPS Grades II–IV because these grades classify people with intense pain commonly accompanied by substantial dysfunction [33]. Thus, the GCPS is a measure of global pain severity and disability. In order to assess the effect of catastrophizing and depression, participants were recruited from a single cohort. Determining the risk factors that predispose an individual to developing more severe or disabling TMJD pain is important when providing counsel to patients and implementing interventions.

2.2. Study population

With the Institutional Review Board approval from the Human Subjects Research Protection Program of the University of Minnesota and informed written consent, 591 TMJD subjects were recruited from a project known as the “Etiology Study.” This was a prospective cohort study funded by National Institutes of Health/National Institute of Dental and Craniofacial Research grant DE09737-09 designed to determine which central and peripheral factors are involved in the etiology of chronic dysfunctional TMJD. The recruitment began on September 1, 1997 and ended on June 30, 2002.

The TMJD study population was recruited from the Minneapolis/St. Paul area through media advertisements and notices distributed to local dentists. The inclusion criteria for participation in this study required a diagnosis of any TMJD pain (muscle and/or joint pain) with a pain frequency of at least once per week, and duration of at least 3 months. Subjects were excluded if they: (1) presented with systemic rheumatic disease; (2) presented with dental, sinus, or other infection that could cause swelling or tenderness over the jaw area; (3) were taking prescribed steroids or narcotics for a chronic condition; (4) were taking antidepressants but had not been on a stable dose for at least the last 2 months; (5) presented with primary psychiatric disease; (6) reported prior to temporomandibular joint (TMJ) surgery; (7) were unable to provide informed consent; (8) were over 65 years of age or under 18 years of age; (9) presented with scheduling problems that would interfere with follow-up (such as leaving town or a work schedule conflict); (10) reported consuming more than 3 alcoholic drinks per day; or (11) were pregnant. “Primary psychiatric disease” characterizes only uncontrolled schizophrenia, psychoses, or other serious primary psychiatric disorders that interfere with the ability to consent or participate in Temporomandibular Joint Implant Registry and Repository (TIRR). It does not characterize depression or anxiety. For the same reason, patients taking antidepressants but who had not been on a stable dose for at least the last 2 months were planned to be excluded from the study. None of these subjects were excluded because none of them presented these conditions. Notably, 21 (4%) of 591 TMJD subjects were not included in this cohort study because of missing baseline data on catastrophizing, depression, and covariates included in the final analyses (eg, widespread pain). From those 21 subjects, 8 were in the GCPS I group and 13 in the GCPS II–IV groups. Twenty of these subjects were female; the mean age for the sample was 36.8 years (SD 12.2), and the mean pain intensity was 7.4 (SD 2.1).

2.3. Temporomandibular disorders pain diagnosis at baseline

The diagnosis of TMJD pain was determined by clinical examination using a modified Craniomandibular Index (CMI) wherein the CMI examination items were redesigned to conform precisely to those specified for the Research Diagnostic Criteria (RDC) [5]. The CMI/RDC examination, referred to by some as the Temporomandibular Index, has been documented to have excellent intra- and inter-examiner reliability and clinical validity [18]. The CMI/RDC examinations were performed by 1 of 2 calibrated examiners at the University of Minnesota Oral Health Research Center. Each subject’s 18-month follow-up examination was performed by the same examiner who had performed the baseline examination.

2.4. Definition of clinical significant pain using the Graded Chronic Pain Scale

The GCPS instrument distinguishes pain levels and disability as follows:

- (a) Low disability and low-intensity pain (GCPS Grade I);
- (b) Low disability and high pain intensity (GCPS Grade II); and
- (c) Higher disability (GCPS Grades III–IV).

Clinically significant pain is defined as GCPS Grades II, III, or IV. GCPS is scored based on the subject’s responses to several items: (1) current; (2) worst; and (3) average pain intensity (0–10 numeric scales); (4) pain-related disability days and pain-related interference with: (5) daily activities; (6) work; and (7) social or family activities (0–10 numeric). Characteristic pain intensity measured by the GCPS is the average of 0–10 ratings of current, worst, and average pain in the prior 6 months multiplied by 10. Disability score is the average of 3 0–10 interference ratings: daily activities, work, and social or family activities multiplied by 10 [33].

2.5. Assessment of risk factors and putative confounders

The risk factors under study were catastrophizing and depression at baseline. Catastrophizing as a negative coping strategy (the tendency for an individual to focus on the worst outcomes) was measured with 6 items of the Coping Strategies Questionnaire (CSQ) catastrophe subscale at baseline [20]. The CSQ consists of items relating to how individuals cope with pain. It yields a 7-point scale according to frequency of use, where 0 = “Never do that” and 6 = “Always do that.” The CSQ also provides measures of subjects’ perceived ability to control and decrease pain. It has been widely used with various pain populations [12].

Depression was assessed by the Beck Depression Inventory [3] at baseline. The scoring cutoffs for the Beck questionnaire are: 0–13: minimal depression; 14–19: mild depression; 20–28: moderate depression; and 29–63: severe depression. Higher total scores indicate more severe depressive symptoms.

The putative confounders were widespread pain, worst pain intensity, GCPS at baseline, age, and gender. Widespread pain was assessed by the question: *Do you experience widespread bodily pain (on both your right and left sides as well as above and below the waist)?* Pain intensity at baseline was assessed using the worst pain intensity (0–10 numerical rating scale [NRS]) scale, which is one of the components of the GCPS.

2.6. Statistical analysis

Chi-squared, Fisher’s exact test, analysis of variance, and Student *t* test were used to test statistical differences between categories of the TMJD subjects relative to their GCPS grades (GCPS I–IV), age, gender, catastrophizing status, widespread pain, pain

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات