The TMJ Association, Ltd.

Issue 3, 2017

TMJ Patient RoundTable Project Progress

On June 16, 2016 your TMJ Association, working with the Food and Drug Administration (FDA), led the first-ever RoundTable bringing together all those concerned with TMJ implants: patients, providers, manufacturers, regulators, researchers, and policymakers. Participants engaged in lively discussions, shared challenges, and expressed their willingness to work collaboratively to rebuild trust and work toward the common goal: improving the healthcare of all the TMJ patients in this country.

The June 16th meeting initiated an ongoing process, laying the groundwork for future discussions, which will center on topic-designated working groups. The groups aim to fulfill the goals of the project, which are to develop outcome assessment and reporting tools based on patient input, as well as ways to incorporate patient-centered data into clinical care. The working groups are examining the natural history and pathophysiology of temporomandibular disorders, and studying how various treatments can progress to the need for surgical procedures and/or implants. Additionally, they are examining current treatment protocols, best practices, guidelines and educational curricula on TMJ treatments as found in a number of healthcare disciplines.

There's a lot to tell you so we plan to make the RoundTable the focus of our next issue. More to come...

Study Highlights TMD Evidence and Current Practice Gaps

The TMJ Association has long championed the need for strong evidence-based demonstrations of the safety and efficacy of TMD diagnostics and treatments. Sad to say, as the following journal article indicates, even among a network of research-oriented practices, dental providers are still resorting to such TMD treatments as occlusal adjustments in which teeth are irreversibly moved, ground down, or in other ways altered, a treatment for which there is no scientific evidence of efficacy.

Dentist Practice Patterns and Therapeutic Confidence in the Treatment of Pain Related to Temporomandibular Disorders in a Dental Practice-Based Research Network.
Kakudate N, Yokoyama Y, Sumida F, Matsumoto Y, Gordan VV, Gilbert GH, Velly AM, Schiffman EL.
J Oral Facial Pain Headache. 2017 Spring;31(2):152-158. doi: 10.11607/ofph.1730.

Abstract

Aims

To quantify the practice patterns of Japanese dentists in the management of pain related to temporomandibular disorders (TMD) and to identify specific characteristics that are significantly associated with the decision to perform occlusal adjustment for TMD-related pain.

Methods
A cross-sectional study was conducted consisting of a questionnaire survey of dentists affiliated with the Dental Practice-Based Research Network Japan (JDPBRN) (n = 148). Participants were asked how they diagnosed and treated TMD-related pain. Associations between dentist characteristics and the decision to perform occlusal adjustment were analyzed via multiple logistic regression.

Results
A total of 113 clinicians responded to the questionnaire (76% response rate), and 81% of them (n = 89) had treated TMD during the previous year. Dentists treated an average of 1.9 ± 1.8 (mean ± SD) patients with TMD-related pain per month. Most JDPBRN dentists used similar diagnostic protocols, including questions and examinations. The most frequent treatments were splints or mouthguards (96.5%), medications (84.7%), and self-care (69.4%). Occlusal adjustment for TMD-related pain was performed by 58% of the participants. Multiple logistic regression analysis identified two factors significantly associated with the decision to perform occlusal adjustment: dentist lack of confidence in curing TMD-related acute pain (odds ratio [OR] 5.60; 95% confidence interval [CI] 1.260 to 24.861) and proportion of patients with severe TMD-related pain (OR 0.95; 95% CI 0.909 to 0.999).

Conclusion
The most common treatments for TMD-related pain were reversible treatments; however, over half of the dentists performed occlusal adjustment for TMD-related pain. The results of this study suggest that an evidence-practice gap exists for occlusal adjustment for TMD-related pain.

#*!"@!**! ... May Help Your Pain... and Improve Strength!

Our headline is adopting the comic strip convention of using symbols to denote swear words because we are intrigued by a report that swearing may have some health benefits. Certainly in our personal lives, we all have felt the satisfaction of exclaiming some forbidden expletive when hitting our thumb with a hammer or as a way of relieving the deep frustration we experience after standing in line and when you reach the box office discovering that the show you wanted to see is sold out. But as a way to reduce pain? and increase strength? Well maybe...

Psychology investigators at Britain's Keele University have conducted a series of investigations in which they found that swearing made individuals more tolerant of pain. They went on to test whether swearing also increased individuals' ability to perform intense exercise and also deepened the strength of their handgrips.

They tested 29 people in an intense anaerobic exercise regimen and found that their power increased after they had used swear words at the outset compared with the same exercise conducted without swearing. Similarly, in a test of handgrip strength of 52 participants, they found that their grips were stronger following a bout of swearing compared with not swearing.

The investigators initially surmised that swearing stimulates the body's sympathetic nervous system-the fight-or-flight mechanism that increases heart rate and affects

energy metabolism, among other things. But when they looked for typical sympathetic system changes they found nothing significant. So now it's back to the drawing board to search for answers. But their findings still hold.

NIDCR Funds Consortium for Developing Dental and Orofacial Tissue Regeneration Therapies

The National Institute of Dental and Craniofacial Research (NIDCR) announced two new cooperative agreements aimed at developing resources and strategies for regenerating dental, oral, and craniofacial (DOC) tissues that have been damaged by disease or injury. Totaling $24 million over three years, these awards support the development of two Resource Centers as part of the NIDCR's Dental, Oral, and Craniofacial Tissue Regeneration Consortium (DOCTRC), an initiative designed to shepherd new therapies through pre-clinical studies and into human clinical trials. The ultimate goal is to develop strategies and devices that could help repair or regenerate damaged DOC tissues, including craniofacial bone, muscle and blood vessels, nerves, teeth, and salivary glands.

"By establishing this research consortium, NIDCR seeks to lead national efforts to accelerate the translation of promising DOC regenerative medicine therapies into the clinic," said NIDCR Director Martha J. Somerman, D.D.S., Ph.D. "DOCTRC is designed as a model for optimizing translation of scientific advances in this field."

To date, few DOC therapies based on regenerative medicine have been commercialized and reached the clinic. A careful analysis of NIDCR's research portfolio identified barriers to the process, and the DOCTRC was established to address them and build on the strength of existing research, using approaches such as:

- Enhanced focus on clinical needs and involvement of practicing clinicians to inform the design of new therapies.
- Development of approaches to generate multi-tissue composites rather than using a single tissue type.
- Targeted translational research and early regulatory guidance.
- Coordination among investigators and industry to develop, validate, and commercialize new tools and technologies.

DOCTRC is composed of three Stages. Stage 1, a one-year planning phase, was successfully completed in 2016. Among proposals submitted for Stage 2, two groups received awards to develop the Resource Centers over the next three years. The Centers will bring together clinical, scientific, industrial, and regulatory experts to develop an infrastructure to deliver high-quality support to Interdisciplinary Translational Projects to be launched during Stages 2 and 3. This support will entail development of standard assays, procedures, and study models to ensure that investigators can uniformly and reliably validate the technologies.

In Stage 3, the Resource Centers will collaborate with both internal and external investigators to move projects to the point of filing Investigational New Drug or Investigational Device Exemption (IND/IDE) applications with the U.S. Food and Drug Administration and launching human clinical trials.

"The DOCTRC consortium aims to streamline translation of dental, oral, and craniofacial regenerative therapies by leveraging multidisciplinary expertise to establish a systematic and uniform research process," said Nadya Lumelsky, Ph.D., Program Director of NIDCR's Tissue Engineering and Regenerative Medicine Research

Program. "By establishing two national cores to support the regenerative medicine research community, DOCTRC represents a new paradigm in translational medicine."

The following RCs will be funded for up to three years:

- Center for Dental, Oral, and Craniofacial Tissue and Organ Regeneration (C-DOCTOR)
  Principal Investigators:
  Jeffrey C. Lotz, University of California, San Francisco, Yang Chai, University of Southern California, Yong Chen, University of Southern California, Kevin E. Healy, University of California, Berkeley, Ophir D. Klein, University of California, San Francisco, Nancy E. Lane, University of California, Davis, Michael Longaker, Stanford University, Mark M. Urata, University of Southern California, and Benjamin M. Wu, University of California, Los Angeles
- Michigan-Pittsburgh-Wyss Resource Center: Supporting Regenerative Medicine in Dental, Oral, and Craniofacial Technologies
  Principal Investigators:
  David H. Kohn, University of Michigan, William V. Giannobile, University of Michigan, David J. Mooney, Harvard University/Wyss Institute, Charles Sfeir, University of Pittsburgh, and William R. Wagner, University of Pittsburgh

Additional articles related to this announcement:

School of Dentistry Leads Major New Regenerative Medicine Center Funded by NIH

UCSF to Lead Resource Team for Craniofacial, Oral and Dental Tissue Regeneration

Predictors of Opioid Efficacy for Chronic Pain Patients

PLoS One. 2017; 12(2): e0171723.
Published online 2017 Feb 3. doi: 10.1371/journal.pone.0171723
PMCID: PMC5291530

Predictors of opioid efficacy in patients with chronic pain: A prospective multicenter observational cohort study

Kasper Grosen, Anne E. Olesen, Mikkel Gram, Torsten Jonsson, Michael Kamp-Jensen, Trine Andresen, Christian Nielsen, Gorazd Pozlep, Mogens Pfeiffer-Jensen, Bart Morlion, Asbjørn M. Drewes

Abstract
Opioids are increasingly used for treatment of chronic pain. However, they are only effective in a subset of patients and have multiple side effects. Thus, studies using biomarkers for response are highly warranted. The current study prospectively examined 63 opioid-naïve patients initiating opioid use for diverse types of chronic pain at five European centers. Quantitative sensory testing, electroencephalography (EEG) recordings, and assessment of pain catastrophizing were performed prior to treatment. The co-primary outcomes were change from baseline in ratings of chronic pain and quality of life after 14 days of opioid treatment. Secondary outcomes included patient's global impression of clinical change and side effects. Logistic regression models adjusted for age and sex were used to identify biomarkers predictive for successful treatment, defined as at least a 30% reduction in average pain intensity or an improvement in quality of life of at least 10 scale points. Fifty-nine patients (94%) completed the study. The mean age was 55 ± 16 years and 69% were females. Pain reduction was predicted by cold pain intensity (OR: 0.69; $P = 0.01$), pain catastrophizing (OR: 0.82; $P = 0.03$), relative delta (OR: 0.76; $P = 0.03$) and beta EEG

activity (OR: 1.18; *P* = 0.04) induced by experimental cold pain. None of the study variables were related to improvement in quality of life. For the first time, individual pain processing characteristics have been linked to opioid response in a mixed chronic pain population. This has the potential to personalize treatment of chronic pain and restrict opioid use to patients with high likelihood for response.

Full article: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0171723

Meet the Reardons

My name is Michelle Reardon and my 22-year-old daughter Alexandra has suffered with TMJ pain, migraines and neck/back pain since she was 14 years old. Early on it started as minor discomfort, but seemed to escalate year after year. Her body acting as a pressure cooker of sorts, discomfort building, waiting to explode.

By age 20, in her second year of college, TMJ pain had reared its ugly head with a vengeance and impacted her once "normal" life. It affected her ability to focus in school and started to impact her ability to function day to day. Approaching her 21st birthday, she started to significantly lose function of her jaw. Her facial muscles became incredibly tight, her mouth opening began to shrink, her ability to chew diminished day by day and her pain was "off the charts." She became nutritionally compromised, as well, and began to lose weight. Pain, despair and anxiety were now a part of her everyday life. In her 4th year of college, majoring in Nursing, she was forced to take a medical leave of absence in an attempt to manage her pain and identify the root cause of this agony. Dreams unfulfilled and goals now seemingly unattainable.

Through the years, we sought out the "best" dentists, doctors and surgeons in the Boston area, and even traveled across the country to consult with doctors in search of answers. She had diagnostic testing: x-rays, MRI's, and blood tests. On the advice of oral and/or maxillofacial surgeons, she had arthrocentesis, steroid injections, Botox injections and arthroscopy. Diagnosis of TMJ, severe bone degeneration, bilaterally displaced discs, and increased inflammation were given, but no explanations as to cause. Six months later, after a Cone Beam Cat Scan (CBCT) and a Bone Scan, we received devastating news; her bilateral condyles were "largely destroyed." She was now considered a candidate for bilateral Total Joint Replacement (TJR) at 21 years old.

As a parent, there is nothing worse than watching your child suffer. We want, so desperately, to see our children happy and healthy. When illness and pain wreak havoc on our children, we as parents want to "fix it."

The problem is with Temporomandibular Disorders (TMD), there are NO quick fixes, NO simple procedures or magic potions to make it better. Many patients and loved ones struggle to find answers that are just not easily found. We turn to medicine with the hope of getting answers that unfortunately are not yet clear. Many physicians are over confident and over optimistic. There is simply not enough evidence based research or long-term follow-up of TMJ patients.

Our journey has only just begun. After consulting with more than 33 doctors over the years, we finally received a definitive diagnosis of Lyme disease along with multiple co-infections. We now know that Lyme Disease has been a MAJOR contributing factor in our daughter's ongoing jaw pain and chronic inflammation. Lyme disease and other tick-borne illnesses, have a profound effect on joint inflammation throughout the body. It is not uncommon to have chronic pain and inflammation in the TMJ's. Had we understood this and the impact Lyme plays on the TMJs we would have sought to rule out Lyme disease much sooner. Since we were unaware of the symptoms of Lyme, we chose the route that so many other TMJ patients travel, that of pharmaceutical/dental/surgical interventions. Had we just treated the Lyme, much of her TMJ pain (if not all of it) would have gone away. Instead, we intervened and because of the manipulation to the TMJ's, she lost more and more of her bone. She is now left with severely degenerated joints, requiring bilateral jaw joint replacements.

Our only word of advice is get tested for Lyme disease. Be aware that the testing for Lyme is highly unreliable and more than 30% of people will receive a FALSE negative. One must rely on looking at ALL of the clinical signs and symptoms of Lyme disease and further pursue other testing if a negative result is found. One must also ask to be tested for co-infections of Lyme; most doctors do not test for these. These co-infections go hand in hand with Lyme, and they also affect the jaw. Seeking a Lyme literate doctor (LLMD) is also a sure way to get an accurate diagnosis. ILADS.org has a comprehensive list of LLMD's in every state.

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The Reardon's recently were interviewed by their local television station about Lyme disease. Watch their story: http://www.fox25boston.com/news/local-family-warns-of-dangers-of-lyme-disease-tick-explosion/518270509

Beware of Ticks and Lyme Disease

We are currently in the peak season for Lyme disease. Each year at this time we highlight this topic because we have heard from a number of patients over the years who were misdiagnosed and underwent unnecessary TMD treatments when they actually had Lyme disease.

Lyme disease symptoms often mimic those of TMD. The TMJ Association encourages patients who think they may have TMD to be sure to talk to their medical doctor in order to rule out other conditions which could be the cause their symptoms. Especially with Lyme disease, early diagnosis and treatment are important.

Lyme disease can cause fever, headaches, fatigue, and a characteristic skin rash. Left untreated, infection can spread to joints, the heart, and the nervous system. Permanent damage to the joints or the nervous system can develop in patients with late Lyme disease.

Other symptoms of early Lyme disease include:

- migratory muscle and joint aches
- headache
- chills and fever
- fatigue
- swollen lymph nodes

Other symptoms may not appear until weeks or months after a tick bite occurs. They include:

- arthritis (usually as pain and swelling in large joints, especially the knee)
- nervous system abnormalities
- heart-rhythm irregularities

This year health officials are also warning of another virus called Powassan which is transmitted by the bite of infected deer/blacklegged tick, the same tick that causes other tickborne diseases, including Lyme disease. Powassan causes nonspecific flu-like symptoms including muscle aches and pains, a small skin rash, and fever and headache.

Clinical Studies: Volunteers Needed

The TMJA has been informed of the following clinical studies seeking qualified candidates to help in research. Read on to see if you are eligible to participate.

Comparative Study of Women Considering or Currently Receiving Botox© Injections for TMJ Pain

Are you a woman within the Los Angeles or New York City areas with TMJ pain in facial muscles, who has either:

a. recently had Botox© injections for your pain or
b. not had Botox© for your pain but has thought about such treatment?

If either is true for you, you may qualify for an observational research study centrally administered by the New York University College of Dentistry. It is funded by the National Institutes of Health (NIH). The purpose of this study is to understand potential health risks that may be caused by treating "TMJ pain" with Botox© injections. Potentially eligible women must first complete a brief interview via telephone to confirm eligibility. Click here for further study information and details.

Genetics of Facial, Jaw and Headache Pain

Chronic orofacial pain represents an economic burden both in the United States and worldwide affecting 5-10% of the population. Researchers at the University of Maryland, Baltimore have developed a novel and comprehensive genetic, behavioral and imaging approach to study the role of genetic variations on pain mechanisms in healthy participants as well as participants with facial, jaw and headache pain.

Who is eligible to participate?
You may qualify if you:

- Are 18-65 years of age.
- Speak and understand English.
- Are either in good health, or you have had headaches, facial pain, and/or jaw pain recently.

This research study requires:

- One screening visit for ensuring eligibility.
- One experimental study session lasting no more than four hours.

Compensation for all sessions and parking vouchers are provided. If you are interested, please email CollocaLab@son.umaryland.edu or call 410-706-5975. For more information, please read the informational flyer.

Biobehavioral Pain Management in TMD
Researchers at Johns Hopkins School of Medicine and the University of Maryland Dental School (Baltimore) are looking for volunteers with widespread pain that includes jaw pain (TMD) to participate in a research study to investigate the effect of three different non-drug treatments on pain and sleep symptoms. If you have fibromyalgia and jaw pain, you may be eligible. For additional information, please read through the study information brochure and patient consent form.

Young Investigators Seeking Research Funding Urged to Apply for USBJI Career Development and Grant Mentoring Program

The TMJ Association is a member of the United States Bone and Joint Initiative and was asked to share this announcement with our readers.

The United States Bone and Joint Initiative (USBJI) and Bone and Joint Canada are dedicated to increasing research of musculoskeletal diseases. To keep pace with the high and increasing burden of these diseases, a higher level of research performed by young investigators in the musculoskeletal diseases is required, and future levels of research assured. This is particularly important given the current environment for research funding, and academic careers. In response, the Young Investigator Initiative is a career development and grant mentoring program providing early-career investigators an opportunity to work with experienced researchers in our field to assist them in securing funding and other survival skills required for pursuing an academic career. To date 202 participants (55%) have successfully obtained $270 million in grants for 1,066 new musculoskeletal research studies. Participants consider this program instrumental to their success. They rate highly the one-on-one mentoring with experienced researchers, the opportunity for inter-disciplinary and peer-to-peer exchange, and collaborations established during workshops.

This career development and grant mentoring program is open to promising junior faculty, senior fellows or post-doctoral researchers nominated by their department or division chairs seeking to pursue a career in clinical or basic research. It is also open to senior fellows or residents that are doing research and have a faculty appointment in place or confirmed. Basic and clinical investigators, without or with training awards, are invited to apply. Investigators selected to take part in the program attend two workshops, 12-18 months apart, and work with faculty between workshops to develop their grant applications. **The next workshop is scheduled to take place November 10-12, 2017, in Toronto, Ontario**. The unique aspect of this program is the opportunity for attendees to maintain a relationship with a mentor until their application is funded. For more about the program and detailed application instructions, please refer to www.usbji.org/programs/yii/call-for-applications. **Deadline to apply is July 15, 2017**.

NIH Funding Opportunities

Basic and Clinical Research

In an effort to promote greater understanding of TMD and to develop safe and effective evidence-based diagnostics and treatments, The TMJ Association promotes and encourages basic and clinical research on Temporomandibular Disorders. We invite you to view a listing of the latest National Institutes of Health (NIH) funding opportunities for scientists interested in advancing TMJ research.

Blueprint Neurotherapeutics Network: Small Molecule Drug Discovery and

Development for Disorders of the Nervous System (UH2/UH3)
Blueprint Neurotherapeutics Network: Small Molecule Drug Discovery and Development for Disorders of the Nervous System (U44)
NIDCR is interested in neurotherapeutics development for painful disorders of the orofacial region including **temporomandibular joint disorder,** trigeminal neuropathies, burning mouth syndrome, and other conditions. Recent advances in genomics and phenotyping of subjects with orofacial pain conditions have expanded the scope of potential targets to treat these conditions. Receptor systems, ion channels, and pro- and anti-inflammatory molecules have been implicated in chronic pain. NIDCR is interested in supporting research that will lead to highly efficacious and specific pharmacological treatments of subjects with orofacial pain disorders. Investigators are encouraged to contact NIDCR program staff to discuss potential research projects prior to application submission to determine alignment of the planned studies with priorities of the Institute mission and strategic plan.

Neuroskeletal Biology of the Dental and Craniofacial Skeletal System (R01)
Neuroskeletal Biology of the Dental and Craniofacial Skeletal System (R21)
The purpose of this Funding Opportunity Announcement (FOA) is to encourage research on the role of the nervous system in metabolism, homeostasis, remodeling and/or regeneration of the postnatal dental and craniofacial skeletal system (DCS) in health and disease. The objectives are to enhance basic science knowledge about interactions between the peripheral and central nervous systems (PNS/CNS) and the DCS, and facilitate development of strategies to optimize normal function, reduce the impact of disease, and develop capacity to repair and regenerate injured teeth and craniofacial bones.

Research E-Newsletter

Cutting Edge - COPCs Research Advances, is an electronic newsletter published by the Chronic Pain Research Alliance, an initiative of The TMJ Association. Developed to keep the medical-scientific community abreast of recent research advances, this publication contains abstracts of recently published studies on the epidemiology, pathophysiology and clinical management of Chronic Overlapping Pain Conditions. These conditions include **temporomandibular disorders**, chronic low back pain, chronic migraine and tension-type headache, endometriosis, myalgic encephalomyelitis/chronic fatigue syndrome, fibromyalgia, vulvodynia, irritable bowel syndrome and interstitial cystitis/painful bladder syndrome.

The most current issues are now available for your review at: http://www.cpralliance.org/New_Findings. If you would like to receive future issues of *COPCs Research Advances*, click here to register.

NEW
Educational Brochures on Chronic Overlapping Pain Conditions

This brochure addresses what are Chronic Overlapping Pain Conditions (COPCs), how COPCs are diagnosed, the complexity of the chronic pain experience, and how to work with your health care provider to develop a treatment plan. It is available by postal mail or as a PDF on our website.

Educational Brochures on TMD

Your Guides for Temporomandibular Disorders - This brochure written by the TMJA is a straightforward, easy-to-read booklet that guides patients in how to make health care decisions. It is available by mail or as a PDF on our website and we encourage you to share it with your friends, health care professionals and family members.

TMJ Disorders - This brochure is produced and distributed by the National Institute of Dental and Craniofacial Research in partnership with the Office of Research on Women's Health, components of the National Institutes of Health (NIH) in Bethesda, Maryland. Part of the U.S. Department of Health and Human Services, NIH is one of the world's foremost medical research centers and the federal focal point for medical research in the United States. This booklet is available in English and Spanish at: https://www.nidcr.nih.gov/OralHealth/Topics/TMJ/TMJDisorders.htm.

Dental Care Guide

Temporomandibular Disorders, Dental Care and You

The TMJ Association developed this guide to provide you with oral hygiene self-care tips that you can do at home, as well as suggestions for future dental appointments. Routine maintenance of your teeth and gums should reduce the risk of dental disease and the need for invasive dental treatments. Click here to view on our website.

Support Our Work

The TMJ Association (TMJA) is the only patient advocacy organization fighting for the best science that will lead to a greater understanding of Temporomandibular and related disorders, as well as safe and effective treatments. We cannot c*hange the face of TMJ* without YOU.

Click HERE to make a tax-deductible online contribution today!

About The TMJ Association

Changing the Face of TMJ

The TMJ Association, Ltd. is a nonprofit, patient advocacy organization whose mission is to improve the quality of health care and lives of everyone affected by Temporomandibular Disorders (TMD). For over 25 years, we have shared reliable information on TMD with people like you. We invite you to visit our website, www.tmj.org.

- If you're not currently receiving *TMJ News Bites* and would like to be on our mailing list, sign up here.
- Past issues of *TMJ News Bites* are also available on our website.

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