

PAIN MANAGEMENT

SPECIAL INTEREST GROUP

PRESIDENT'S MESSAGE

This year's CSM venue was a bit different than year's past. Programming, as always, was excellent and there was less of a hurry to get from one program to another. My continued thanks go to outgoing Education Chair, Beth Jones, and a welcome to incoming chair, Tess Vaughn. I would also like to take this opportunity to thank outgoing Orthopaedic Section President, Jay Irrgang for his support and to welcome Steve McDavitt as incoming Section President. Welcome Pam Duffy to the BOD who is replacing our Board Liaison, Bill O'Grady. Last and certainly not least, my continued thanks and admiration go to Terri DeFlorian and Tara Fredrickson as well as the Orthopaedic Section BOD who always go above and beyond to continue to make this meeting a huge success.

The first PMSIG program was entitled "Taijiquan in Rehabilitation: Ancient Tradition, Modern Evidence." Michael Costello, from the Orthopaedic Physical Therapy Residency Program, Cayuga Medical Center, Ithaca, NY presented the use of Taijiquan (also known as Tai Chi Chuan) as a rehabilitation modality with research evidence of its effects on pain, disability, self-efficacy, strength, balance, density, and cardiovascular effects.

The second presentation was "Essential Pain Knowledge for Physical Therapists: Recommendations from the International Association for the Study of Pain" presented by Marie Hoeger Bement from Marquette University, Kathleen Sluka and Mary Beth Geiser from the University of Iowa. Topics were the nature of pain, pain assessment and measurement, management, and clinical conditions with innovative strategies for patient and student education.

Both programs were informative and well presented. Congratulations to all presenters for their good work.

TAKING CARE OF US

A few weeks ago, while observing a reverse total shoulder replacement, the orthopaedic surgeon and I got into a discussion of his health. The surgeon told me that he was hospitalized every month for the first 6 months during 2012. My admonishment to him was that we do our best for our patients while ignoring our own health until we get into trouble. Health care workers are not immune to illnesses. In fact, health care worker deaths are higher than the national average when compared to number of employees/total deaths. Higher death rates have been reported only in high risk occupations such as military personnel, construction workers, police officers, etc.¹ We instruct our patients on wellness, stress reduction, and healthy lifestyles while we slowly burn out. We tend to work long hours, eat poorly, and exercise less in order to take care of others. Mindfulness of our own wellness can lead to empathy of our patients, allowing us to give more compassionate care, and produce better outcomes. We all struggle with stress, and disclosing this to our patients can result with better patient compliance. This echoes the statement of Balint who said that "the most

frequent (and important) drug used in general practice was the doctor himself."² If we practice what we preach to our patients, we have a win-win situation.

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2013 MEETING MINUTES PMSIG SAN DIEGO

Wednesday January 23, 2013

The meeting was called to order at 12:10 AM by John Garzzone, President.

Last years' minutes were published in OPTP and approved.

All involved with SIG activities were thanked for their participation over the past year. Continued thanks go to Joel Bialosky, Research Chair, for his contributions to the quarterly E-mail blasts.

We still need more articles for the OP newsletter that can be E-mailed to johngarzzone@frontiernet.net for submission. The SIG must have at least two articles a year published in OPTP.

OLD BUSINESS

1. The PMSIG Web site has been updated to find a Pain Management PT. Unfortunately the Web site will only allow us to search by last name and location.
2. The PMSIG Task Force has formulated topics and authors for an ISP. Some of the potential authors have expressed trepidation about the time involved with writing different modules since many of them have contributed chapters to Kathleen Sluka's book through the International Association for the Study of Pain. The PMSIG requested the Orthopaedic Section's BOD to consider sponsoring a CEU exam based on Kathleen's book. The authors would not mind formulating an exam for CEUs rather than writing new modules. Hopefully, something could be worked out with the International Association for the Study of Pain to share profits with the Orthopaedic Section from members who purchased the book through them. The PMSIG and Orthopaedic Section would split profits made from the CEU exam. The PMSIG could also add to the ISP by producing one or two additional modules on brain imaging and brain chemistry written by professionals who were not involved in Kathleen's book.
3. A conference call will be held in February or March to discuss a "Read for Credit" CEU examination.

NEW BUSINESS

1. Congratulations go to Neena Sharma, and Laura Frey- Law our newly elected members of the Nominating Committee. The office of President will be elected next year.

2. The PMSIG would like to sponsor a preconference course for next CSM.
3. A research retreat on pain was discussed.

The meeting was adjourned at 12:40
Respectfully submitted,
John Garziona, President

INTEGRATIVE OUTPATIENT PHYSICAL THERAPY TREATMENT FOR PEDIATRIC CHRONIC PAIN: A CASE STUDY OF A 13-YEAR-OLD BOY

Jamie Nelson, PT, DPT, OCS

ADAM'S STORY

Adam, a bright and active 13-year-old boy, injured his right shoulder while playing basketball in November 2010. He felt that his pain and soreness were similar to a typical sprain or strain, one that any active 13-year-old might endure. In a few days, there were no residual symptoms or functional limitations.

After Christmas, Adam contracted a virus that lasted several weeks. In January 2011, his painful shoulder symptoms returned with a vengeance. From January until May 2011, Adam developed severe arm pain leading to significantly decreased shoulder range of motion (ROM) and strength. Radiological tests were interpreted as normal. He tried acupuncture and massage with only limited relief. He was referred to physical therapy with a diagnosis of Shoulder Pain and was treated for a total of 21 visits from May through December 2011.

In August, Adam was given clearance to attend soccer camp. A few hours into camp it became obvious to Adam that the running was too much and was causing him to have intense shoulder pain. He became very scared and frustrated, and stopped all recreational activity.

In September, he began to experience extreme burning in his right arm and hand of non-dermatomal, non-radicular origin. His pain and fear of activity became exponentially high leaving him limited in his abilities to perform even simple daily tasks that eventually restricted his ability to participate in school.

CHRONIC PAIN

Chronic pain syndromes with complex presentations such as Adams are becoming more recognized in the pediatric population. A cross-sectional study done in Spain in 2008 found that out of 561 children between the ages of 8-16, 37.3% had chronic pain disorders with 5.1% being moderate to severe chronic pain.¹ A more recent systematic review from 2011 consisting of 41 studies performed between the years of 1991 and 2009 showed that the prevalence of musculoskeletal chronic pain ranges from 4% to 40%.² The wide range seen above suggests a high variability in the classifications regarding the severity and disability associated with chronic pain disorders.

Adam had been suffering with right arm and hand pain for 4 months before he was referred to a pain specialist and eventually to me 5 months after onset (he had already had 21 prior PT visits for his shoulder pain only). Unfortunately, this

is a common occurrence with chronic pain patients, especially in the pediatric population. A study in 2008 from the *Journal of Pediatrics International* showed that of 14 pediatric patients eventually diagnosed with CRPS, the median time to referral to a pain clinic was 24.51 weeks.³ Among most articles that I reviewed, this appears to be an average timeframe. Although early diagnosis and treatment is crucial to minimize disability, there is evidence that suggests children with complex regional pain syndrome (CRPS) are more resilient and have a much higher full recovery rate than adults with CRPS, even in cases of late diagnosis.³

Adam's severe hyperalgesia with a negative neurological and radiological workup suggested that he was possibly developing CRPS. The International Association of the Study of Pain (IASP) developed specific criteria for the diagnosis of CRPS: (1) the presence of an initiating noxious event, (2) the continuation of pain, allodynia, or hyperalgesia in which the pain is disproportionate to an inciting event, (3) evidence of edema, changes in blood flow, or abnormal pseudomotor activity, and/or (4) the diagnosis is excluded by the existence of conditions that would otherwise account for the degree of pain and dysfunction.⁴ It is very common that patients, including Adam, present with 3 of the 4 criteria. I treat these patients the same as if they fit all 4 criteria. In my opinion, patients who do not fit the IASP criteria perfectly often spend more time finding a diagnosis instead of starting treatment.

TREATMENT

Initial assessment begins when a patient and his parent walks into the evaluation room. Evaluating the individual personality and family dynamic prior to making any measurements is often one of the most important parts of therapy.

It has been well-documented that there is a large psychosocial component in both pediatric and adult chronic pain. What this really means is there are most likely certain individuals that are genetically predisposed to developing chronic pain. While the scope of this article/editorial is not to describe the proposed mechanisms of central sensitization, predisposing factors might include types of genetically influenced neuro-hormonal dysregulation.⁴ The other half of the psychosocial equation is the environment and how it has shaped or influenced ones response to certain stimuli such as pain that cognitive behavioral therapists address. It is also the area that I feel physical therapists need to influence more often. According to a recent review done by the *Journal of Pediatric Rheumatology* in 2012, children with chronic pain have generally been found to have ineffective coping strategies, a heightened sense of a lack of control (which often couples with anxiety), perceived lower competence, are perfectionists who set exceedingly high goals, and often portray catastrophizing behavior.⁴

When I met Adam for the first time in January 2012, I noticed immediately that he was an extremely bright, motivated, and self-reflective 13-year-old male. It had been noted by his pediatrician that Adam had a tendency to be more anxious than other children. Although this had the potential to affect Adam's progress, the fact that Adam did not display any signs of catastrophizing behavior suggested that he would progress more quickly through his program.

Adam had appropriate levels of support from his mom throughout the entire rehabilitation process. This component is

crucial for recovery as it has been shown that children who have parents who offer more concerned responses to pain behaviors have greater pain and functional disability.⁴

After assessing the patient and family dynamics, I find it important to educate patients by providing a definition of pain. It is important to the pediatric pain population to make sure that the patient understands what pain is. Deciphering between pain, function, and fear early on will help direct treatment more effectively. While Adam's exceptional understanding of the pain scale was one of the components that allowed our treatment plan to progress at an ideal pace, this is not always the case.

The next step in my assessment is to discuss and measure function. I use two to 3 functional outcome measures to direct my treatment and measure progress including the Patient Specific Functional Scale (PSFS), the Functional Disability Inventory (FDI), and the Fear Avoidance Beliefs Questionnaire (FABQ). While each provides beneficial information, it is important to note that the only outcome measure validated for the pediatric population is the FDI.

Since control has been identified as a crucial component for treatment in an anxious child, the PSFS is my preferred outcome measure as it allows the child to self-select activities. Adam identified 7 activities that were limited as a result of his dysfunction. He chose to work on writing, buttoning shirts, pushing buttons, opening doors, fastening seat belts, typing and brushing his teeth. He rated his ability to perform the activity 0-10, 0 not being able to perform at all, 10 being fully able to perform the activity at the preinjury level. He then rated his pain levels with each activity 0-10, 0 being no pain at all, 10 being the worst imaginable pain ever, as indicated in the following chart.

Activity	Score	VAS
Writing	0	8
Buttoning shirts	1	6
Pushing Buttons	0	6
Opening Doors	0	6
Fastening Seat belts	0	6
Typing	1	6
Brushing teeth	0	6
Average total	.285	8
*(Taken 1/5/12 visit 1 of 8 during patients second course of physical therapy with J. Nelson)		
MDC (90% CI) for average score: 2 points		
MDC (90% CI) for single activity score: 3 points ⁵		

After taking a patient history, discussing pain and function, performing sensory test and measures (which include tolerance to light touch, pressure, scratching, joint approximation, temperature, vibration, stretch, and muscle contraction), it is time to start treatment beginning with **step one: Building the foundation of trust and patient control**. This can sometimes be especially difficult with the pediatric population. Building trust includes letting the patient get comfortable with you as a therapist. Getting down to the patient's level, making eye contact with the patient, not the parent, and allowing the patient to try techniques on you first are all ways to build trust and allow control. The more a child understands the type of pain they are

experiencing, the more control he has, and the more willing he will be to try the activity. I often will work on explaining central sensitization and how our brain influences pain. Adam responded well to this concept and started to understand that he wasn't necessarily going to get progressively worse.

Step two for treatment is to make frequent and measurable goals for each session. This is important for *functional reassurance* and *reduction of fears*. I generally create a spreadsheet to track activities in the clinic and at home. Adam's initial activity consisted of wall circles for a timed period with each hand. We then focused on squeezing a towel, tendon glides, supination/pronation, leg press, squats on a BOSU balance trainer and standing on the BOSU with finger curls. Each week we reassessed his ability to perform the activities, added new activities, and revised his goals, if appropriate.

Step three: Learn how to distract. I often find with pediatric patients that if you keep them distracted while moving a body part or testing sensation they are able to tolerate more stimuli. With Adam, we counted backwards, performed multiple tasks at one time, and used storytelling as a means for distraction. This often helped Adam forget he was using his arms for an activity and reach his time or repetition goals more rapidly. The more often Adam met his goals the more control he felt he had and the less fearful he became.

Step four: Stop talking about pain, start talking about function. All of Adam's goals for treatment were based on function. The first question at the beginning of each session was not "How is your pain today?" but "How much have you been able to do this week?" Adam became excited to report that he could now do 40 seconds of repetitive window washing. Such an achievable goal gave Adam a sense of trust and control, allowing him to conquer more of the tasks that he was initially scared of trying.

Step five: Initiate the sensitive desensitization process. I start specific desensitization treatments only when a patient feels comfortable enough to understand that pain is not the enemy. In other words, "This is going to hurt, but it's not going to hurt you." Depending on the patient, this can sometimes be the hardest part. On day one, Adam and I started with timed periods of light touch with varying textures. We quickly progressed to pressure, scratching, stretching with combined nerve glides and vibration. All activities were done at home also. We then modified these activities to match his functional goals (ie, holding an electric toothbrush for longer periods of time).

Finally, **Step six: you've got to do all of the scary stuff.** The common vicious cycle had set in for Adam as it does for many who have chronic pain. The fear of pain keeps one from trying an activity, which in turn makes it more difficult to perform later on. If treatment can start prior to severe fear setting in, outcomes are generally more favorable. Eventually it becomes time to just start doing the things that you used to not be able to do. For some this is appropriate in their first session, for others their tenth. One of the many things that Adam had stopped doing was using his right hand to open doors. On our first visit, based on his tolerance to the tests we performed, I decided we needed to pick one task a week. The task for week one was to ALWAYS use your right hand to open a door. Tasks for week two included pushing the buttons on the treadmill with the right hand only.

It should also be understood that physical therapy in itself

might not be enough for some patients. Cognitive Behavioral Therapy (CBT) can be very useful and sometimes needs to be combined with pharmaceutical management. Adam had two sessions of CBT and started a low dose of a selective serotonin re-uptake inhibitor (SSRI) mid-treatment. I have found this triple therapy of medication, CBT, and physical therapy to be very effective in more difficult cases.

After 8 weeks of one time per week with 30-minute sessions, we revisited Adam's PSFS scores to obtain final scores:

Activity	Score	VAS
Writing	10	1
Buttoning shirts	10	0
Pushing Buttons	10	1
Opening Doors	8.5	1
Fastening Seat belts	10	1
Typing	10	1
Brushing teeth	9	1
Average total	9.64	.857
*(Taken 3/7/12 final visit 8 of 8 during second course of physical therapy with J. Nelson)		
MDC (90% CI) for average score: 2 points		
MDC (90% CI) for single activity score: 3 points ⁵		

The improvements in both pain and function were significant. He progressed from an average of 3% max function and 80% max pain to 96% max function and 8% max pain. Adam's success was mostly due to his compliance and motivation to return to school and sports.

Although there are a multitude of chronic pain conditions, most in the pediatric population, appear to improve with early intervention. For cases that do not improve with outpatient treatment, there are exceptional inpatient programs that involve a large multidisciplinary team consisting of pain management, anesthesiology, physical and occupational therapy, psychiatry, and behavioral management. These programs have been shown to be very successful in reducing pain and improving function.⁶⁻⁸

It is crucial for parents and pediatricians to recognize that even children can suffer from complex chronic pain conditions. Early recognition and intervention can often times stop the progression of a disorder and facilitate a more rapid recovery. A therapist who can focus on gaining trust and allowing patient control, making measurable and frequent goals, using distraction, focusing on function versus pain, being sensitive to the desensitization process, and encouraging the scary stuff will most likely find success at the end of such a long and painful journey.

DISCLAIMER

In order to protect the identity of the patient, some of the above information has been modified.

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