Figure 1. Comparison regarding low back pain as measured by VAS before, after treatment and at 6 months follow up

Figure 2. Comparison regarding serum beta endorphin before, after treatment and at 6 months follow up

Conclusions: Epidural corticosteroid injection and Pulsed electromagnetic field stimulation are effective tools in management of chronic low back pain

REFERENCES:

- [1] Abdi S, Datta S, Trescot AM, et al. Epidural steroids in the management of chronic spinal pain: a systematic review. *Pain Physician* 2007;10(1):185–212.
- [2] Rohde C, Chiang A, Adipoju O, et al. Effects of pulsed electromagnetic fields on interleukin-1 beta and postoperative pain: a double-blind, placebo-controlled, pilot study in breast reduction patients. *Plast Reconstr Surg* 2010;125(6):1620–9.

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THU0543

COMPARISON OF THE EFFECTIVENESS OF LOW LEVEL LASER THERAPY AND STEROID INJECTION IN MODERATE CARPAL TUNNEL SYNDROME: A RANDOMISED CONTROLLED TRIAL

S. Badil Güloğlu¹, M. Bilgilişoy Filiz¹, K.K. Kılıç², S. Koldaş Doğan¹, I. Erdem Toslak², N.F. Toraman¹. ¹Physical Medicine and Rehabilitation; ²Radiology, Health Sciences University, Antalya Training and Research Hospital, Antalya, Turkey, Antalya, Turkey

Background: Recent studies have reported that low-level laser therapy (LLLT) reduces pain and improves function in carpal tunnel syndrome (CTS). However, to the best of our knowledge, there exist no studies that compares the effectiveness of LLLT and steroid injections in moderate CTS.

Objectives: Is to evaluate the effectiveness of LLLT and steroid injection in moderate CTS, by comparing the symptoms, the electrophysiologic and the Magnetic Resonance Imaging (MRI) findings of the patients.

Methods: 87 patients with moderate CTS were included in the study. 87 patients were randomised to the steroid or LLLT groups. LLLT was applied to the carpal tunnel area (6 joules/5 min) five times per week, for a total of 10 sessions. Steroid injections were performed once after randomization. Numbness and pain of the patients were assessed using a Visual Analogue Scale (VAS), disability was assessed using the Quick arm-shoulder-hand (Quick DASH) disability questionnaire. Rough and fine grasping strength tests, Tinel and Phalen tests and

electrophysiological test were performed. All the patients were evaluated by MRI in terms of median nerve cross-sectional area, median nerve intensity and intensity rate, and median nerve palmary spring rate. All tests were performed before the treatment, and 1. month and 6. months after the treatment, except the MRI evaluations, which were done before and after 6. months of the treatment.

Results: The study was completed with 80 patients, 133 wrists at the end of six months. There were no significant differences between the groups in terms of demographic and baseline clinic characteristics, electrophysiologic and MRI findings of the patients ($p>0.05$). While the VAS scores of numbness and pain and Quick Dash symptom scores were better in the steroid group in the first month, there were no significant differences between the groups in the sixth month. In both groups, there were similar significant improvements in the Phalen and Tinel tests, rough and fine grasping forces, median nerve motor distal latency value in the first and sixth months after the treatment in comparison to pretreatment values ($p<0.05$). Median nerve sensory distal latency and median sensory NCV showed significant improvements in the 1st and the 6th months after treatment in comparison to pretreatment only in the steroid group ($p<0.05$). In both groups, there were similar significant improvements in the median nerve intensity rate in the radioulnar plane and median nerve palmary spring rate on the MRI after the treatment. Median nerve intensity rate was improved in both groups also at the pisiform plane but this improvement was significant only in the steroid group.

Conclusions: It is possible to conclude that LLLT reduces the signs and symptoms of the patients who has moderate CTS as well as the steroid treatment. Our study offers a data regarding LLLT's efficiency in short-intermediate terms. Further studies are needed to make comments about long-term efficiency of LLLT. LLLT is a noninvasive treatment option in moderate CTS and with a similar efficacy as steroid treatment.

REFERENCE:

- [1] Evcik D, Kavuncu V, Cakir T, Subasi V, Yaman M. Laser therapy in the treatment of carpal tunnel syndrome: a randomized controlled trial. *Photomed Laser Surg* 2007;25:34–39.

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THU0544

STUDY OF THE EFFECTS OF OZONE VERSUS STEROID INJECTION ON PATIENTS WITH RECALCITRANT TENNIS ELBOW; A CLINICAL TRIAL

S.A. Raeissadat¹, M.H. Abdollahzadeh². ¹Physical Medicine and Rehabilitation Department of Shahid Beheshti University of Medical Sciences, Research Development Center of Shahid Modarres Hospital; ²Physical Medicine and Rehabilitation Department of Shahid Beheshti University of Medical Sciences, Physical Medicine and Rehabilitation Research Center, Tehran, Iran, Islamic Republic of Iran

Background: Tennis elbow is a prevalent musculoskeletal disorder. In recent years ozone injection has been proposed as a treatment for many musculoskeletal disorders. This study aims to compare the effect of ozone injection with steroid in patients with recalcitrant tennis elbow.

Objectives: The aim of this study is to compare the effect of ozone with the standard treatment of steroid injection in patients with tennis elbow, resistant to conservative treatments. This comparison is made according to VAS score, Pressure pain threshold (PPT) and modified Mayo clinic performance index for elbow.

Methods: In this study 64 patients with tennis elbow, which have had the symptoms for more than 3 months and were resistant to conservative treatments, were randomised to two groups. In steroid injection group 40 mg of methylprednisolone acetate and in ozone injection group 4 ml of ozone with concentration of 15mcg/ml was injected. 32 patients in steroid and 29 patients in ozone injection group finished this study. Data were gathered before injection and 2 and 6 months after that by VAS score, modified Mayo clinic performance index for elbow and PPT (measured by the means of an algometer). Variables were compared between the two groups and also the changes in each group have been measured in reference to baseline data.

Results: In both groups VAS score, Mayo clinic performance index and PPT improved significantly in 2 and 6 month follow up. Steroid injection was significantly better than ozone injection in improving 2 and 6 months pressure pain threshold and 6 months Mayo clinic performance index. Other data didn't show significant difference between the two groups.

Conclusions: Both steroid and ozone injection improved pain and function in patients with recalcitrant tennis elbow for at least 6 months. Steroid injection was superior to ozone injection in improving PPT during the 2 and 6 month follow up and function improvement in steroid group was significantly more than ozone group after 6 month.

REFERENCES:

- [1] Chourasia A, Buhr K, Rabago D, Kijowski R. Relationships between biomechanics, tendon pathology, and function in individuals with lateral epicondylitis. *J Orthop* 2013;
- [2] Mawsoof M, El-Sawalhi M. Effect of ozone therapy on redox status in experimentally induced arthritis. *Revista*. 2012;

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THU0545

CHARACTERISING A MOUSE MODEL OF TEMPOROMANDIBULAR JOINT (TMJ) ARTHRITIS TO STUDY OROFACIAL PAIN AND INFLAMMATION

X. Kodji¹, J.D.S. Valente¹, F. Lundy², I. El Karim², S.D. Brain¹. ¹BHF Centre of Excellence, Vascular Biology and Inflammation, King's College London, London; ²The Wellcome-Wolfson Institute for Experimental Medicine, School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast, Belfast, UK

Background: The temporomandibular joints (TMJ) encompass the jawbones (mandibular condyle) and the skull region (temporal bone)¹. Dysfunctions in these joints and surrounding muscles result in a condition known as TMJ disorder (TMD), which include mastication-related pain. 16%–59% of patients reported painful symptoms while 33%–86% of these patients showed clinical signs¹. Currently, the etiology of TMD is unknown, although lavage samples from patients showed signs of synovitis, which may lead to the development of degenerative disorders, such as TMJ arthritis². There are only a few murine models available, as the most commonly used animal model is TMJ arthritis in rats.

Objectives: We aimed to characterise a mouse model of TMJ arthritis by mimicking the formation of synovitis using zymosan. We sought to characterise the development of orofacial pain by performing various behavioural measurements and measure joint inflammation.

Methods: All *in vivo* procedures were carried out according to the UK Home Office Animals (Scientific Procedure) Act 1986. Male CD1 mice (6–8 weeks) were anaesthetised transiently using 2% isoflurane. Zymosan (10, 30, or 100 µg; 10 µl), or saline was administered unilaterally into the TMJ as previously described³. Spontaneous pain behaviours were observed by counting the number of unilateral cheek wipes. All studies were terminated by cervical dislocation and the tissue was collected for *ex vivo* analyses. Mean ± SEM was calculated and data were analysed by unpaired Student's T-test or 2-way repeated measures ANOVA with Bonferroni's *post hoc* test. *p* < 0.05 was accepted as statistically significant.

Results: A dose response study showed that 30 µg, but not 10 µg and 100 µg of zymosan, resulted in a maximal wiping response at 2 hours, which was maintained at 4 hours (table 1; ****p* < 0.001 zymosan ipsi vs saline ipsi; ## *p* < 0.01 zymosan ipsi vs contra). Hind paw scratching was negligible. Hence, 30 µg was used for subsequent experiments. Increased neutrophils (measured by MPO assay) was observed in zymosan-treated joints (table 1 ***p* < 0.01 saline ipsi vs zymosan ipsi), while a similar trend was also observed in 3-nitrotyrosine protein expression, a marker of protein nitrosylation (*p* = 0.053). Preliminary studies are being undertaken to characterise other inflammatory markers in addition to the development of *in vivo* orofacial mechanical hyperalgesia using the Von Frey filaments.

Table 1 A summary of zymosan-mediated spontaneous orofacial pain behaviours and inflammation.

	Saline (n=4)				Zymosan							
					10 µg (n=6)		30 µg (n=5)		100 µg (n=6)			
	Ipsi	Contra	Ipsi	Contra	Ipsi	Contra	Ipsi	Contra	Ipsi	Contra	Ipsi	Contra
Unilateral cheek wipe (no. of events)	5.0 ±1.0	5.5 ±1.9	5.7 ±2.6	6.0 ±1.2	22.0 ±4.4	8.2 ±2.6	5.3 ±3.3	3.1 ±1.2				
					*** ##							
Unilateral hind paw scratching (no. of events)	0.5 ±0.5	0.0 ±0.0	1.0 ±0.7	4.5 ±2.6	3.4 ±0.8	2.1 ±1.0	0.4 ±0.2	0.4 ±0.2				
MPO (U/mg of protein)	0.01 ± 0.003		N/A		0.08 ± 0.01 **		N/A					
3-nitrotyrosine/GAPDH	2.3 ± 0.4				3.8 ± 0.5							

Conclusions: We have established a mouse model of TMJ arthritis, which showed significant orofacial pain responses *in vivo*. Our data highlights an inflammatory profile typical of zymosan and shows a potential use for this model to investigate novel TMD treatments.

REFERENCES:

- [1] Millam. *J Musculoskel Neuron Interact* 2003;3(4):382–390.
- [2] Cheng and Israel. *J Maxillofac Surg* 2005;63(6):761–765.

- [3] Kramer, et al. *Physiol Behav* 2010;99(5):669–678.

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Paediatric rheumatology

THU0546

CHILDREN WITH PSORIASIS ALSO SHOW ENTHESOPATHY SIGNS RELATED TO SKIN DISEASE ACTIVITY

T.C. Meneghetti, T.M. Padilha, V.F. Azevedo, V.O. Carvalho. *Federal University of Paraná, Curitiba, Brazil*

Background: Many recent evidences shows the role of enthesopathy in psoriatic disease and the high prevalence of musculoskeletal widespread pain in patients with psoriasis and psoriatic arthritis. It may be very difficult to distinguish between inflammatory disease activity and fibromyalgia. Limited data are available about the prevalence of rheumatological findings in children with psoriasis.

Objectives: To determine the prevalence of musculoskeletal pain complaints, enthesitis and tender points in a population of children and adolescents with psoriasis and correlate it to the skin disease activity and quality of life.

Methods: 26 children and adolescents with psoriasis were included in this cross sectional study and assigned a written informed consent. Patients and parents were interviewed about musculoskeletal complaints, personal and familiar history of rheumatic diseases. A paediatric rheumatologist performed the physical examination, which included evaluation of active joint count, palpation of entheses and tender points of fibromyalgia. A paediatric dermatologist performed PASI score and BSA to assess skin disease activity. Nails involvement were assessed by NAPS. The functional capacity was assessed by CHAQ. The quality of life was assessed by CDLQI.

Results: Participants were 69% female, with a mean age of 10.1 ± 3.0 years at observation. The median of age at the beginning of skin disease was 3 (0.5–12) years. PASI median was 4 (0.6–30.2), BSA 6 (2–39) and NAPS 12.3–36. A severe PASI above 5 were present in 38.5%. Complaints of any kind of musculoskeletal recurrent pain were seen in 46.1% of the patients and lumbar pain in 15.4%. Pain, limit on motion or joint oedema were seen in 26.9% whereas tenderness on palpation of any site of enthesitis was found in 30.7% and tenderness on palpation of sacroiliac joint was found in 19.2% of the patients. The median of fibromyalgia tender points was 5 (0–16). The presence of enthesitis was associated to the skin disease activity scores of PASI (*p* < 0.006), BSA (*p* < 0.016) and nail index NAPS (*p* < 0.05) (figure 1). As expected, the presence of enthesitis was associated to the number of tender points (*p* < 0.001). For those with a severe PASI > 5, we found a higher number of tender points (Med 0 versus 10; *p* < 0.03), a worst functional capacity by CHAQ (Med 0 versus 0.12; *p* < 0.03) and worst quality of life by CDLQI (Med 1 versus 9; *p* < 0.05).

Conclusions: High prevalence of musculoskeletal pain symptoms, enthesitis and fibromyalgia tender points was observed in this sample of children and adolescents with psoriasis. Differently from adults, we do not expect to have age-related degenerative changes in entheses in this population, what reinforce the inflammatory origin of these rheumatologic findings. Otherwise, the association with the severity of psoriasis increases the need for vigilance against the appearance of psoriatic spondyloarthropathy in this group.