



Marcus Musings JANUARY . DECEMBER 2013

1. **Nucleoplasty is Effective in Reducing Both Mechanical and Radicular Low Back Pain: A Prospective Study in 87 Patients**, Journal of Spinal Disorders and Techniques Vol 25 No 6 August 2012 pp 329-332 Shabat et al

This study showed that there was a 50% reduction in pain at both one and two years in patients who underwent nucleoplasty at the L3/4, L4/5 or L5/S1 discs for disc protrusion in combination with radicular pain, where there was more than a 50% disc height preservation. They additionally received non-steroidal anti-inflammatory agents and a lumbar epidural steroid injection.

**Comment:** *As this is not a randomised controlled trial, it's difficult to know how much additional pain relief nucleoplasty afforded the patients besides simply natural history resolution with pharmacotherapy and epidural steroid injection. Overall, this would be classified as low level evidence of the benefit of nucleoplasty within this situation.*

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2. **Therapeutic Effects of Lidocaine Patch on Myofascial Pain Syndrome of the Upper Trapezius** American Journal of Physical Medicine and Rehabilitation CME Article 2012 No 9.

This study from Taiwan showed a significant reduction in pain for two weeks, but not for four weeks, after application for one week of the Lidocaine patch. Reduction in both the neck disability index, the pain score and the pressure pain threshold.

**Comment:** *This indicates that the Lidocaine patch reduces pain for the duration that it's on and probably for one week afterwards. It possibly may have a place as part of a comprehensive rehabilitation program for patients with persistent myofascial pain, although more work needs to be done in this area.*

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3. **The Prevention of Chronic Post-surgical Pain using Gabapentin and Pregabalin: A Combined Systematic Review and Meta-analysis**, Pain Medicine, August 2012 Vol 115 No 2, pp 428, Clarke et al

This paper from the Pain Research Unit of Toronto General Hospital looked at eleven studies, eight of which could be meta-analysed. Six Gabapentin trials demonstrated a moderate to large reduction in the development of chronic post-surgical pain, odds ratio 0.52 (P=0.04) and two Pregabalin trials showed a large reduction in the development of chronic post-surgical pain, odds ratio 0.09 (P<0.01).

**Comment:** *This shows that Gabapentin and especially Pregabalin can reduce chronic post-surgical pain and are ideally suited to being deployed to prevent this outcome in high risk subjects or high risk surgical settings.*



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4. **Forefoot Running Improves Pain and Disability Associated with Chronic Exertional Compartment Syndrome** American Journal of Sports Medicine 2012 May Vol 40 No 5 pp 1060-7 Diebal et al

This paper from the Keller Army Community Hospital at Westpoint in New York showed ten patients with this condition awaiting surgical decompression who underwent six weeks of forefoot running training and their compartment pressures dropped significantly and their running distance increased from 1.4km to 4.8km and no patient required surgery.

**Comment:** *This case series which is Level IV evidence showed symptoms were greatly reduced for up to one year after a forefoot running program in patients with chronic exertional compartment syndrome.*

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5. **The Long Term Outcome of TENS in the Treatment of Patients with Chronic Pain: A Randomised, Placebo Controlled Trial, Oosterhof et al, Pain Practice, Vol 12, Issue 7 2012 pp 513 – 22**

This study from the Netherlands looked at one year outcomes of TENS vs. sham TENS in 165 patients. After one year, 30% of the TENS group and 23% of the sham TENS group were satisfied with the treatment result, experiencing a mean overall improvement of 63%. There was no difference between the two groups.

**Comment:** *On the face of it, this is a negative result but, in fact, what it shows is that for 3/10 patients they will get a 60% reduction in pain from continued use over one year with TENS, but that sham TENS is just as good, indicating that there may be non-specific benefit accruing to applying external treatment. Overall, it remains confusing as to how much of a role TENS should play in chronic pain treatment as there are a number of positive and negative studies in this area.*

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6. **Risk Factors for New Osteoporotic Vertebral Compression Fractures after Vertebroplasty: A Systematic Review and Meta-Analysis** Journal of Spinal Disorders and Techniques, 2012 28 September Zhang et al.

This paper from Nan Zhing University in China showed that patients with low bone mineral density (therefore at increased risk of osteoporosis), low body mass index (thus not enough muscle to take load and all the load goes onto bone) and intradiscal cement leakage (making a stiff transition point within the bone between osteoporotic bone and solid cement) were risk factors for new vertebral compression fractures after vertebroplasty.

**Comment:** *This makes intuitive sense and provides you with the first step of attempting to reduce the risk for certain patients.*



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7. **Bacteria Cause One Third of All Low Back Pain?** European Spine Journal published online 13<sup>th</sup> February, 2013 Albert et al

A revolutionary study has been published in the European Spine Journal online. This paper is from Denmark and it looked at patients with persistent low back pain who had oedema in the adjacent vertebral body on MRI scan and it was a double blind randomised controlled trial with 162 patients, half of whom received Amoxicillin/Clavulanic Acid (Augmentin Duo Forte) and half who received placebo for three months. At the follow up one year, one third of all patients in the treatment group had had cure of their low back pain whereas all patients in the placebo group had ongoing low back pain. This represents a number needed to treat of 3.8 to cure low back pain.

**Comment:** *The reason I am highlighting this in the New Clinical Insights for this newsletter is the fact that this will revolutionise our approach and treatment to chronic low back pain. It appears that, with prolonged culturing of discs obtained at surgery, that somewhere between 20 to 80% of these discs actually end up growing bacteria, mainly proprium bacteria acnes or staphylococcal species. The now accepted theory is that bacteria that seed into the systemic circulation from a remote source end up accessing the disc and, in that generally hypoxic environment, they cause chronic infection and chronic inflammatory response and subsequent degeneration of the disc with rupture of the annulus fibrosis and often a subsequent disc protrusion and persistent low back pain arising from the disc as the source of that pain. The fact that we can now select a sub-population of patients with chronic low back pain where there is evidence of inflammation, i.e. modic type 1 change in the vertebral body, means that we can now offer a curative treatment for a significant number of patients. The fact that it is so simple as three months of Augmentin Duo Forte is quite remarkable.*

*We are commencing this treatment at Hunter Pain Clinic in appropriately selected and triaged patients and will be collecting data on the outcome and on cure rates and complications.*

*There is a clear requirement, not only to do more studies in this area, but also to appropriately educate clinicians who treat patients with persistent low back pain as to this new major advance.*



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**8. Effect of Early Stellate Ganglion Blockade for Facial Pain from Acute Herpes Zoster and Incidence of Post-Herpetic Neuralgia** Pain Physician 2012 Vol 15, pp467 – 74 Makharita et al

This is a critically important randomised double blind controlled trial of 64 patients aged over 50 years with acute herpes zoster and half received a stellate ganglion block with Bupivacaine and Dexamethasone (8mg) and half received a saline stellate ganglion block. Patients received an anti-viral agent as per normal clinical practice.

Not only was the duration of pain shorter in the group who received the active stellate ganglion block but the incidence of post-herpetic neuralgia at six months was significantly less in this group also. Not unsurprisingly, patient satisfaction was also higher. By the fourth week, 29 out of 32 patients in the active stellate ganglion block group reported no pain.

**Comment:** *This paper from two University hospitals in Egypt now shows that best clinical practice includes early stellate ganglion block for facial acute herpes zoster pain to reduce not only the pain but also to prevent the occurrence of post-herpetic neuralgia. To not do so is now no longer satisfactory on the basis of a randomised controlled double blind trial. It will be imperative upon Pain Clinic directors to disseminate this information to the wider medical community.*

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**9. Comparison of the Radio Isotope Cisternography Findings of Spontaneous Intercranial Hypotension and Iatrogenic Cerebrospinal Fluid Leakage Focussing on Chronological Changes,** Cephalagia Vol 32, No 15 2012 pp 1131 – 39, Sakurai et al

This paper looked at the radio isotope results of seven patients with spontaneous intercranial hypotension and six patients with cerebrospinal fluid leakage from lumbar puncture and it showed that in the group with a recent lumbar puncture, there was evidence of lumbar sacral CSF leak and there was significant incidence of early bladder uptake, meaning that neither of these two particular radio isotope stenography findings can be used as diagnostic criteria in cases of suspected spontaneous intercranial hypotension, such as that post trauma. It means that we can only count as likely real findings, the ones of cervical or thoracic spill of CSF or a lack of CSF arising to the brain over 12 to 24 hours.

**Comment** *Early reports suggested a high incidence of traumatic CSF leakage post whiplash which have subsequently been discounted by later studies. The truth most likely lies in between and this paper ties that together nicely indicating that we should only consider intercranial hypotension when we see cervical or thoracic CSF leakage or where we see a lack of radioactivity over the brain convexities and any other findings are likely to be spurious related to placement of the needle into the CSF at the lumbar sacral level.*



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**10. Prednisone for the Treatment of Withdrawal of Headache in Patient with Medication Overuse Headache: A Randomised Double Blind Placebo Controlled Study, Cephalalgia 2012 Vol 0, No 0 pp 1 – 6, Rabe et al**

This was a prospective double blind placebo controlled parallel designed multicentre trial of 96 patients undergoing withdrawal treatment of opioids with medication overuse headache. 100mg of Prednisone daily for five days, reduced rescue medication compared to placebo but did not change the amount of headache experienced in the first five days.

**Comment:** This indicates that Prednisone should not be first line treatment for management of patients undergoing a withdrawal protocol for medication overuse headache. It should only be considered where adverse effects from the amount of rescue medication that is being deployed would mean that there would be a net benefit from instituting Prednisone for the first five days to allow reduction in rescue medication amount. It should not be used routinely. There is Level One evidence for this.

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**11. No Difference in Nine Year Outcome in Chronic Low Back Pain Patients Randomised to Lumbar Fusion vs. Cognitive Intervention and Exercises, European Spine Journal, 2012 Vol 21, pp2531 – 38 Froholdt et al**

This study showed that in two merged randomised clinical trials there was no difference in the Oswestry Disability Index as to whether a patient received conservative or operative treatment. Patients who were operated on used more pain medication and were more likely to be out of work than those treated conservatively.

**Comment:** *Unfortunately, yet another study showing no long term superior benefit of spinal fusion vs. conservative management, suggesting that spinal fusion for chronic low back pain with its higher morbidity and mortality should not be considered routine and be considered in selected circumstances only.*

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**12. Compensation “Cured by Verdict”? - Longitudinal Study of Health Outcomes After Whiplash, Journal of Legal Medicine 2012 Vol 20 pp 82 -92 Spearing et al**

This study comes from 265 patients involved in a rear end motor vehicle collision in the United Kingdom who developed Whiplash Associated Disorder and sought compensation. The study looked at the visual analog scale for neck pain two years out from the motor vehicle crash in two groups. One group had settled their claim and one group had not. There was no change in visual analog scale between the two groups from which one can conclude that having your claim settled does not lead to a rebound decrease in pain levels.



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**Comment:** *This shows that removing the financial incentive to over-report symptoms has no effect on self-reported neck pain in a fault based compensation scheme.*

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**13. Is Activation of Transversus Abdominis and Obliquus Internus Abdominis Associated with Long Term Changes in Chronic Low Back Pain? A Prospective Study with One Year Follow-up.** British Journal of Sports Medicine 2012 August Vol 46 No 10, pp 729 – 34 Unsgaard-Tondel et al

This study comes from Norwegian University and they looked at 109 patients with chronic non-specific low back pain who underwent an eight week core muscle stability exercise program. They showed that there is a significant reduction in low back pain one year after the intervention in the group who had insufficient lateral slide in the transversus abdominis at baseline and who subsequently managed to significantly increase their transversus abdominis lateral slide after the intervention. Not too surprisingly, where transversus abdominis was functioning normally at baseline; there was no improvement one year later. The odds ratio was 15 in the first group which is a highly significant number. Therefore, it shows that it is worthwhile improving core muscle stability where it is deficient and confirms what the pain community has felt but without the proof prior to this.

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**14. Effect of Specific Exercise Strategy on Need for Surgery in Patients with Subacromial Impingement Syndrome: Randomised Controlled Study,** British Medical Journal 2012 20<sup>th</sup> February Vol 344 pp 787 Holmgren et al.

This study from Linkoping University in Sweden looked at 102 patients who had failed conservative management of persistent subacromial impingement syndrome and the active group was given a specific exercise strategy consisting of strengthening eccentric exercises for the rotator cuff and concentric/eccentric exercises for the scapular stabiliser in combination with manual mobilisation. The control group were given unspecific movement exercises for the neck and shoulder. Treatment was for twelve weeks.

A successful outcome (defined as a large improvement or recovery) was found in 69% of the specific group vs. 24% of the general exercise group and only 20% of the specific group subsequently chose to undergo surgery vs. 63% of the general group (odds ratio 7.7).

**Comment:** *This shows that all patients should be offered a specific exercise strategy for persistent subacromial impingement syndrome prior to being considered for subacromial decompression.*

**15. Evidence that Central Sensitisation is Present in Patients with Shoulder Impingement Syndrome and Influences the Outcome after Surgery; Journal of Bone and Joint Surgery British 2011 April Vol 93 No4 4 pp 498 – 502 Gwilym et al.**

This paper is from Oxford, United Kingdom and they looked at 17 patients with unilateral impingement of the shoulder and 17 age and sex matched controls who underwent QST (quantitative sensory testing for mechanical stimuli, sharp and blunt punctate stimuli and heat pain).

The presence of either hyperalgesia to punctate stimulus of the skin or pain referred down the arm had a significantly worse outcome from subacromial decompression three months after surgery.

**Comment:** *The fact that central sensitisation can occur in a sub-group of patients is of no surprise and the fact that they then do worse from surgery is no surprise. It indicates that appropriate treatment is to look for referred arm pain or evidence of hyperalgesia and, if present, treatment should be specifically directed to that to have those symptoms controlled prior to undergoing subacromial decompression. This will include potentially conspiring interscalene nerve block and trials of oral antineuropathic agents and a neural stretching program for example. It is critically important that the shoulder surgical community becomes aware of these findings.*

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**16. Randomised Trial of Pregabalin in Patients with Neuropathic Pain due to Spinal Cord Injury, Neurology 2013 Jan 23<sup>rd</sup> Cardenas et al,**

This is a randomised study looking at 220 patients treated with Pregabalin or placebo for 17 weeks and they showed a significant reduction in the duration adjusted average change in pain as well as a number of secondary outcome measures, such as change in mean pain score from baseline to endpoint, the percentage of patients with more than 30% reduction in mean pain score at endpoint, patient global impression of pain scores at endpoint, etc.

The p value was 0.003 on the 95% confidence interval did not cross the zero line.

**Comment:** *We now have Level I evidence that Pregabalin can be effective in neuropathic pain due to spinal cord injury and it should feature as first line therapy for these patients.*



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- 17. CT Guided Percutaneous Cordotomy for Intractable Pain, Turkish Neurosurgery 2013 Vol 23, No 1 pp 81 -7, Kampolat.**

This paper is from the famous Neurosurgeon, Kampolat, looking at 224 patients treated with CT guided cordotomy. He looked at 210 patients with intractable pain due to malignancies. Pain scores decreased significantly and there was no mortality or major morbidity related to the procedure.

**Comment:** *This extensive real world experience shows that CT guided percutaneous cordotomy is very effective for pain control in palliative pain control and it should increasingly become part of the armamentarium of a palliative pain service.*

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- 18. A Negative Correlation between Hyperalgesia and Analgesia in Patients with Chronic Radicular Pain: Is Hydromorphone Therapy a Double-edged Sword? Pain Physician, 2013, Jan Vol 16, No 1 pp 65 – 76, Suzan et al.**

This paper comes from Haifa in Israel and they looked at 32 patients who had individually titrated dose of oral Hydromorphone for chronic radicular pain (N dosage 4 – 20mg per day) and they had assessment of analgesia of the underlying condition as well as the evidence for opioid induced hyperalgesia which was tested for by heat pain intensity and cold pain tolerance. On average, the pain of the index and condition decreased by 2.6 VAS units (0-10 scale) but Hydromorphone dosage was positively correlated with opioid induced hyperalgesia.

**Comment:** *This study shows that a pure mu opioid, in this case Hydromorphone, produced both analgesia and opioid induced hyperalgesia and this will come as no surprise to Clinical Pain Physicians. It certainly suggests that, for neuropathic pain, pharmacotherapy with oral antineuropathic agents should be the baseline treatment and opioids should be added in only for incomplete analgesic response. There is a desperate need for antihyperalgesic opioids and much research will now be focussed on both Buprenorphine and Tapentadol to see if they meet these requirements.*

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- 19. Perioperative Intravenous Lidocaine (Lignocaine) Decreases the Incidence of Persistent Pain after Breast Surgery Clinical Journal of Pain, Vol 28 No 7 Sept 2012 pp 567-70 Grigoras et al**

This study is from Cork University Hospital and is a randomised controlled trial of placebo vs. intraoperative Lignocaine infusion, terminated one hour post skin closure in 36 patients on the outcome of persistent post-surgical pain three months later. The incidence in the placebo group was 47% chronic pain. The incidence in the group receiving the Lignocaine infusion was 12%. (P=0.03). The VAS was higher in the placebo group, 14.6 vs. the Lignocaine group 2.6 (P=0.02). The area of hyperalgesia at three months was significantly less in the Lignocaine group, 0.2cm, vs. the control group 3.2cm.



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**Comment:** *This randomised controlled trial shows the benefit over placebo of a short intravenous Lignocaine infusion during surgery. It certainly should now be recommended to be applied for breast surgery and it should be strongly considered for those other surgical operations that have a high incidence of post-surgical pain such as thoracotomy, inguinal hernia surgery, etc. This paper, although appearing in a Pain Journal, should be widely disseminated to both the Anaesthetic and Surgical community.*

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**20. Lumbar Spine Fusion for Chronic Low Back Pain due to Degenerative Disc Disease: A Systematic Review, Spine 2013 Apr 1 p409-22 Phillips et al**

This paper is a Medline and Cochrane systematic data base search for papers published on the subject. 26 articles were found that met the criteria of outcome measures with a minimum twelve months follow up and this represented 3000 patients. The weighted average improvement in the VAS was 3.7 units and there were corresponding improvements in the Oswestry Disability Index of 22 and of the SF36 Physical Component Scale 12.5. Patient satisfaction varied between 60 – 80% and one in eight fusions required re-operation.

**Comment:** *Far from total nihilism as regards fusion surgery for chronic low back pain, it is clear that in high quality published studies that have generally come out of academic centres of excellence, there is clearly benefit for a number of patients to undergo fusion surgery. The re-operation rate is not insignificant. It can be often difficult in the real world of clinical practice to replicate the outcomes of academic based studies and often stringent selection criteria are the key to achieving this. Some wise heads have said that a non-obese, non-smoking, non-workers compensation, non-opioid taking, non-depressed patient with persistent back pain and a single level degenerative disc may well do well from fusion surgery and I would agree with them. This is obviously a small subset of the total patient population pool.*

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**21. Botulinum Toxin A in Post Herpetic Neuralgia: A Parallel Randomised Double Blind Single Dose Placebo Controlled Trial, Clinical Journal of Pain, Vol 2000 No 00 2013 pp 1 – 8. Apalla et al**

This paper from the University of Thessaloniki in Greece assessed 30 patients with post herpetic neuralgia receiving 100iu of Botox 2.5 units injected per site in 40 sites, with each site being 1cm<sup>3</sup> in their pain area. They showed a ten day delay to onset and a clinical efficacy lasting three months. The number needed to treat to obtain benefit was 1.2, indicating a highly efficacious treatment.

**Comment:** *We now have evidence of an almost universally successful treatment that will effectively buy time awaiting natural resolution from the condition or, alternatively, buy pain control whilst putting in place other treatment options to extinguish the condition. Botulinum Toxin should now become a part of standard armamentarium for treatment of post-herpetic neuralgia.*



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**22. Neurological Examination of the Peripheral Nervous System to Diagnose Lumbar Spinal Disc Herniation with Suspected Radiculopathy: A Systematic Review and Meta-analysis.** *Nezari et al. The Spine Journal Vol 13 2013 pp 657 – 674*

This study comes from the Centre for Physiotherapy Research, University of Otago in Dunedin and was a review of fourteen published studies looking at sensory motor and reflex neurological examination in patients with radiologically and, separately, surgically confirmed disc herniation. Most interestingly, the sensitivity and specificity across the three neurological examination groups was very poor with all tests demonstrating low sensitivity, moderate specificity and limited diagnostic accuracy independent of the disc herniation reference standard.

**Comment:** *It is clear, therefore, that we cannot rely on the neurological examination to confirm or exclude a disc herniation for a patient with a suspected radiculopathy.*

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**23. Neurological Examination of the Peripheral Nervous System to Diagnose Lumbar Spinal Disc Herniation with Suspected Radiculopathy: A Systematic Review and Meta-analysis.** *Nezari et al. The Spine Journal Vol 13 2013 pp 657 – 674*

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**Comment:** *It is clear, therefore, that we cannot rely on the neurological examination to confirm or exclude a disc herniation for a patient with a suspected radiculopathy.*

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**24. Predictors of Pain Relief following Spinal Cord Stimulation in Chronic Back and Leg Pain and Failed Back Surgery Syndrome: A Systematic Review and Meta-regression Analysis.** *Taylor et al. Pain Practice, 2013, pp 1 – 17,*

This paper is from Rod Taylor and his colleagues and looked at 3000 patients reported mainly in case series who had chronic back pain and/or chronic leg pain. What he showed was that, overall, between 47 – 60% of patients will have a halving of their pain at two years post implant. Put another way, the average reduction in pain score was just under 4 units on a numerical rating scale. The mean pain reduction was 58% but that varied very much according to the length of uncontrolled persistent pain prior to implant. For patients implanted with 15 years of chronic pain, the percentage reduction of pain overall was 40% reduction; whereas the response rate at less than six months was of a 75% reduction in pain from baseline.



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**Comment:** *The benefit of this is that it is a more real world group drawn from many multiple centres around the world. It doesn't represent best practice in one expert pain clinic which may not be applicable to widespread pain clinic treatment. If we define a responder as a 50% reduction in pain that is sustained, then we see that approximately 50% of patients are responders. As this included all papers, it really represents an average of technology used over the last 20 years and certainly not current or up to date optimised technology. It does, however, show the importance of aiming to treat persistent pain early with this therapy as results are impaired as each year of uncontrolled pain goes by.*

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**25. Common Anatomical Variation in Patients with Ideopathic Meralgia Paresthetica: A High Resolution Ultrasound Case Control Study** Morizt et al, Pain Physician 2013, Vol 16, e287 – e293.

This study looked at 28 patients with meralgia paraesthetica and 15 controls and ultrasound measurements were made of the distance of the lateral femoral cutaneous nerve from the anterior superior iliac spine. In controls, the distance between the two was between 0.5 – 3.0cm which is in keeping with text book descriptions and forms how the recommended block of that nerve is to be performed, but most interestingly and relevant, was that the distance in the patients with meralgia paraesthetica was much less and ranged from 0 – 1.0cm in total. This has implications for why they developed meralgia paraesthetica in the first place, i.e. possible tight entrapment of the nerve within the facial plane or bundle to the anterior superior iliac spine and it also means that when performing a block in patients with the condition, one must modify the technique to go very close to the anterior superior iliac spine, otherwise one will miss the nerve. Until now, that has not been classical teaching.

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**26. Arm Squeeze Test: A New Clinical Test to Distinguish Neck from Shoulder Pain** Gumina et al, European Spine Journal

This paper from University of Rome looked at over 1,500 patients who came with a diagnosis of cervical nerve root compression or shoulder disease as well as 350 healthy volunteers. The middle third of the arm was tightly squeezed and the pain level recorded, and that was followed by tight squeezing pressure over the subacromial bursa and coracoid region and the pain for those two levels was recorded and averaged. When the pain induced by an arm squeeze was more than 3 numerical rating scale points above the mean of the shoulder pain, then that was highly diagnostic of the pain arising from a cervical, rather than a shoulder, cause. The likelihood ratio varied from 11 to 48 for different shoulder conditions, meaning that this is a highly useful and discriminatory test.



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**Comment:** *Ideally, this test should now be validated in another sample group for definitive acceptance within the canon of clinical examination. However, immediately applied to the clinical field, it can be reasonably used in cases where it is unclear to help sway the judgement one way or another. It appears to be a simple, cheap, reproducible and accurate test.*

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**27. Lateral Parasagittal vs. Midline Interlaminar Lumbar Epidural Steroid Injection for Management of Low Back Pain with Lumbar Sacral Radicular Pain: A Double Blind Randomised Study** Ghai et al, Anaesthesia and Analgesia, July 2013, Vol 117 No 1 pp 219 – 227.

This study from Chandigarh, India, looked at 37 patients who either received midline or off to the midline epidural steroid for their back and leg pain. At the end of six months, 68% in the parasagittal group vs. 17% in the midline group still had good pain control. This gives a number needed to treat of 2 for the treatment. No abnormal complications over the midline injection occurred for the parasagittal injection group.

**Comment:** *It is remarkable that this is the first paper actually looking at these two approaches and the result in symptomatic patients. It is remarkable that it is so effective to deliver to the ventral area with a number needed to treat of 2 being a highly improved therapeutic outcome. It requires only a movement of a few millimetres of the Tuohy needle to modify the technique from the standard midline approach. As this was a randomised double blind study, it now behoves clinicians to justify why they would not perform their epidural injections parasagittally.*

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**28. The Diagnostic Advancement of Axial Loaded Lumbar Spine MRI in Patients with Clinically Suspected Central Spinal Canal Stenosis** Kim et al, Spine 2013

This paper looked at patients who went in a weight bearing MRI scan and it showed that there was an extra 25% that were reclassified as having severe spinal canal stenosis when axially loaded.

**Comment:** *There are some patients with neurogenic claudication and mild to moderate spinal canal stenosis and the correlation between symptoms and cross-sectional area is only moderate at best. Weight bearing MRI scan that simulates the erect gravity position clearly uncovers a high number of patients having severe spinal canal stenosis and makes that association stronger. Where there is confusion as to where to operate or treat the patient for spinal canal stenosis because of the mild to moderate nature of the radiological findings, consideration should be given to an axial loaded MRI scan.*

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**29. Surgery vs. Non-Surgical Treatment for Cervical Radiculopathy: A Prospective, Randomised Study Comparing Surgery Plus Physiotherapy with Physiotherapy Alone with a Two Year Follow-up** Engquist et al. Spine 2013

This paper looked at patients at the one and two year mark and showed that surgery produced a greater reduction in neck pain intensity at one year, compared to physiotherapy and no surgery, but the difference was lost at two years (with 80% of patients happy with their surgical outcome and 70% of patients happy with their physiotherapy outcome, difference not significant).

**Comment:** *Clearly, surgery gives better results within a twelve month timeframe but its clear advantage over physiotherapy is lost subsequently. It is reasonable to trial conservative management including physiotherapy prior to considering surgical intervention.*

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**30. Ranking of Tests for Pain Hypersensitivity According to Their Discriminative Ability in Chronic Neck Pain** Neziri et al, Spine 2013

This paper looked at a significant number of patients and 26 different tests to look for pain hypersensitivity. The test with the greatest area under the curve (AUC = 0.92) was the pressure pain threshold at sited maximum pain area. Therefore, clinically, if mild pressure is applied at the site of maximum pain experienced, and that produced significant pain whilst still a mild level of pressure is being exerted, then this is the best criteria for determining that pain hypersensitivity is present.

**Comment:** *This reinforces Pain Clinic experience and indeed medical common sense.*

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**Comment:** *This reinforces Pain Clinic experience and indeed medical common sense*

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**34. The Role of Fluoroscopic Interlaminar Epidural Injections in Managing Chronic Pain of Lumbar Disc Herniation or Radiculitis: A Randomised, Double Blind Trial,** Manchikanti et al Pain Practice, 2013 Vol 13, Issue 7, pp 547 – 558

This randomised controlled trial was undertaken at an academic private pain management centre in Kentucky, United States. 120 patients were assigned to either local anaesthetic epidural injection or local anaesthetic plus corticosteroid epidural injection. The epidural injections were given as four per year. In terms of outcome at twelve months, 85% of patients receiving local anaesthetic plus steroid had a 50% or more reduction in both their pain scores and their Oswestry Disability Index and 67% of patients in the local anaesthetic only group achieved the same result. This gives a comparative number needed to treat of 6 for the steroid being additionally beneficial over the local anaesthetic. This, by definition, means that 6 patients need to be treated with epidural local anaesthetic and steroid for 1 patient to benefit, compared to just local anaesthetic alone. This means that epidural steroids are helpful, but not dramatically so over local anaesthetic alone. This result would not, in and of itself, change current clinical practice.

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### 35. Papers from Cochrane Systematic Data Base Reviews July 2013

This Cochrane is a meta-analysis of the use of opioids in neuropathic pain. There were fourteen trials identified with a total of 845 patients and all trials were added together and meta-analysed. Overall there was a 30% reduction in pain from baseline after titration of the opioid. The 95% confident interval for the number needed to treat was 7.7, meaning that there is statistical certainty that the true number needed to treat lies below this figure.

**Comment:** *This confirms that there is partial efficacy for opioids in neuropathic pain but that the effect size is modest and that one probably needs to treat somewhere between four to seven patients for one to benefit. Given that is the case, one should clearly be using doses that do not produce significant opioid related side effects such as opioid induced hyperalgesia so that one is not actually making the pain worse. Clearly, further work needs to be done in this area, including looking for those particular opioids that may have better efficacy than the standard mu opioid and determining whether or not in fact Buprenorphine, Tramadol and Tapentadol may be those opioids.*

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### 36. Meta-analytic Review of the Hypoalgesic Effects of Exercise Maugle et al Journal of Pain, 2012, December Vol 13, No 12, pp1139 – 50,.

This paper is from the Pain Research and Intervention Centre for Excellence at the University of Florida in Gainesville and it looked at studies using a repeated measures design to examine the effect of acute isometric, aerobic or dynamic resistance exercise on pain threshold and pain intensity. The meta-analysis showed that there were large effect sizes for isometric exercise and dynamic resistance exercise and moderate effect size for aerobic exercise. This was in healthy participants. In chronic pain populations,

the results were more highly variable and the optimal dose of exercise that is needed to produce hypoalgesia could not be systematically determined.

**Comment:** *This meta-analysis confirms that exercise causes analgesia and therefore is desirable as part of the package of treatment for the patient with persistent pain. Individualised optimisation of that is the rationale related to their pain disability, functioning etc.*

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**37. Nutrition and Eating Behaviour in a Sample of Patients with Chronic Pain and Long Term Opioid Therapy**, Meleger et al Physical Medicine and Rehabilitation, 2013 August 22nd Supplement pp1934-1482

Fifty patients with chronic pain and maintained on opioid analgesics were recruited from an Outpatient Pain Rehabilitation Centre at Harvard Medical School. It was found that 72 % of these patients were overweight or more and 44% were obese. There was deficient nutrient intake and poor eating behaviour in terms of only 1.8 units of fruit and vegetable servings per day.

**Comment:** *Attention to dietary impairment in patients with persistent pain on opioids should be considered with likely significant room for improvement in dietary intake.*

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**38. Clinical Effectiveness of Single Lumbar Transforaminal Epidural Steroid Injections**, Kaufmann et al, Pain Medicine Volume 14, No 8, 2013 pp 1126 . 1133

This study from the Mayo Clinic looked at over 2000 patients receiving transforaminal epidural steroid injections between 2006 and 2011. They showed that 46% of patients at two months had halved their radicular pain or more and 41% of patients had had a 40% or more reduction in their Roland Morris Disability Score. They showed that the shorter the duration of pain at the time the procedure was performed, led to a better outcome.

**Comment:** *This massively large data set confirms absolutely that radicular steroid administration for radicular pain is effective out to at least two months of duration of clinical effect. The earlier it is applied in the pain course, the more effective is the result. Ideally, six or twelve month outcomes should also have been measured and ideally, whether it prevented patients having to go onto spinal surgery should have been looked at.*

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**39. Genome Wide Expression Profiling of Complex Regional Pain Syndrome** PLoS ONE 2013 November 14, Vol 8 No 11 E 79435 Jin et al

This paper from the Chungnam National University Hospital in Korea did genome wide expression profiling of blood from four CRPS patients and five control patients. There were 80 genes that were differentially expressed between the two groups. Most of these genes were associated with signal transduction, developmental processes, cell structure and motility, and immunity and defence. Relevant genes were then looked at in a micro-array in a further 24 CRPS patients and 18 controls and the gene with the highest relative fold change (four times) was the matrix metalloproteinase Nine gene.

**Comment:** *Genomic profiling has thrown up interesting avenues of further suggested research in various conditions. To my knowledge, this is the first time this has*



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*been applied to the condition of Complex Regional Pain Syndrome. It suggests that there may either be an associative or causal relationship with the MMP9 gene and pain progression in patients with CRPS and further work is warranted in this area. Ultimately, if it is found to be causative, then methods to block this gene amplifying come into clinical relevance. However, it is known that Morphine causes MMP9 gene increased expression and that is part of what then may contribute to Morphine tolerance. It thus may then be an associative factor that the patients with Complex Regional Pain Syndrome because of poor pain control were exposed to large doses of opioids (which were ineffective for their neuropathic pain) which then led to the significantly increased MMP9 and it may be that MMP9 is not directly causative.*

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**40. A Pharmaco-epidemiological Cohort Study of Subjects Starting Strong Opioids for Non-Malignant Pain: A Study from the Norwegian Prescription Data Base, Pain 2013 Vol 154 pp 2487 – 2493 Fredheim et al**

This paper from Trondheim in Norway analyses the Norwegian Prescription Data Base which provides complete national data at individual level on dispensed drugs. They looked at 17,000 patients prescribed strong opioids in 2005 and tracked that over the next five years. 24% of the study cohort were still using opioids five years later and the rest had ceased. Of those using opioids long term, 1/3 (33.7%) had increased the dose by more than 100% from the baseline dose prescription with the rest either increasing less than that, stable or actually decreasing their dose. High dose opioid intake was associated with high dose Benzodiazepine intake.

**Comment:** *The authors speculate whether those who develop opioid related addiction and dose escalation present a symptom perceived as anxiety, then necessitating prescription of Benzodiazepines. This would be a reasonable conjecture to make. One can conclude from the study that in the majority of patients, opioids are either not required long term or useful long term for pain management. This would be in line with current contemporary thinking.*

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**41. Targetted Alteration of Dietary N-3 and N-6 Fatty Acids for Treatment of Chronic Headaches: A Randomised Trial. Pain 2013 Vol 154 pp 2441 – 2451 Ramsden et al**

This multi-centred study predominantly from North Carolina looked at 56 patients completing a twelve week dietary intervention study. One group received low N-6 (all Omega 6) and one group received high N-3 (i.e. Omega 3) and low N-6 diet. All of the patients had chronic daily headache. The results were significant. In the high Omega 3/low Omega 6 group, then had five less days of headache per month, 3.4 hours of less headache per day and a greater chance of a headache free day (28% vs 8%). The results became profoundly significant at the end of the twelve week mark.

**Comment:** *This is a very rigorous and well conducted study that emphatically shows the benefit from raising Omega 3 and lowering Omega 6 levels of fatty acids in the diet. This is a simple and cheap dietary intervention any individual can undertake who has chronic daily headache. Whilst many patients will resort to*



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*taking high dose Omega 3 Fish Oil 3000 mg tds, one should not discount the fact that it may be the multiple benefits found in Omega 3 rich food (such as salmon, sardines, tuna, etc) that may be responsible for the Omega 3 benefit. It clearly is a combination of increasing Omega 3 and reducing Omega 6 that appears to be efficacious. Therefore, attention needs to be given to sources of Omega 6 intake (such as sunflower oil, fried foods, etc). From this study, it is reasonable to incorporate this into clinical practice as a recommendation for patients with chronic daily headache.*

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42. **Concurrent and Simultaneous Poly Drug Use: Latent Class Analysis of Australian Nationally Representative Sample of Young Adults** Front Public Health 2013 November Vol 28, No 1, page 61 Quek et al

This study used data from the Australian National Drug Safety Household Survey and looked at over 3000 young adults, aged 19 – 29, and their drug intake. 52% of young adults used alcohol. 34% used alcohol and tobacco and approximately 14% used combinations of cannabis, ecstasy, amphetamines, prescribed drugs and sedatives. The highest incidence was with young adult males with low education and young adult males with high income.

**Comment:** *It should be mandatory practice in the Pain Clinic assessment to specifically enquire in adults aged under 30 as to the alcohol, tobacco, cannabis, ecstasy, amphetamine, Benzodiazepine and opioid intake of patients. Without doing so, one is not understanding what is occurring in the patient's life and how this may interact with prescribed medications.*

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43. **Psychological Trauma and Functional Somatic Syndromes: A Systematic Review and Meta-analysis,** Psychosomatic Medicine 2013, December 12<sup>th</sup> Afari et al

This study looked at 71 studies with a control or comparison group and examined the association of the syndromes with traumatic events of any nature, sustained during childhood or adulthood. Meta-analysis showed that individuals who reported exposure to trauma were 2.7 times more likely to have a functional somatic syndrome. This was even more so for Chronic Fatigue Syndrome compared to Irritable Bowel Syndrome or Fibromyalgia.

**Comment:** *This robust analysis highlights the association between subsequent development of functional somatic syndromes and pre-existing trauma. It may well be a mediating effect of Post Traumatic Stress Disorder for example. It is therefore sensible to include psychological counselling and evaluation and management of PTSD in patients with functional somatic syndromes where there has been a past history of trauma.*

**Pregabalin Rectifies Aberrant Brain Chemistry, Connectivity, and Functional Response in Chronic Pain Patients,** Anaesthesiology 2013, December Vol 119, No 6, pp1453-64 Harris et al



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This study looked at seventeen Fibromyalgia patients and subjected them to Proton Magnetic Resonance Spectroscopy, Functional Magnetic Resonance Imaging and Functional Connectivity Magnetic Resonance Imaging, both during placebo and during Pregabalin treatment. The study clearly showed that Pregabalin works, in part, by reducing insular glutamatergic activity, leading to a reduction of the increased function of connectivity seen between brain regions in the Fibromyalgia state. It raised the possibility that baseline neuroimaging markers may subsequently predict analgesic response to Pregabalin.

**Comment:** *This is an important piece of the puzzle that helps understand how Pregabalin helps a subset of patients with Fibromyalgia. It will open the door to more potential avenues of treatment.*

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#### 44. The Sources of Pharmaceuticals for Problematic Users of Benzodiazepines and Prescription Opioids Medical Journal of Australia 18<sup>th</sup> November 2013 Vol 199 No 10, pp 696-699 Nielsen et al

This study consisted of 204 treatment entrant interviews of drug treatment services in Victoria, Queensland, Western Australia and Tasmania. It enquired as to where these patients obtained Benzodiazepines and opioids from that they were abusing. In 72% of cases, the usual source was a prescription from a Doctor for Benzodiazepines. For prescription opioids, it was only 29% were obtained from a Doctor. In the case of opioids, the rest of the sources consisted of obtaining from dealers, friends or gifts.

**Comment:** *This study has clear implications. It suggests that the significant majority of Benzodiazepines are directly obtained from a Doctor at source and then abused by that drug dependent individual. Minimising or eliminating Benzodiazepine prescription would therefore have a material impact immediately on source access. As far as prescription opioids are concerned, obviously ultimately they do come from Doctor prescription but clearly they are moving from the prescribed patient to other people and then being moved on to drug dependent individuals. Therefore, some component of patients being prescribed opioids are not taking them and they are finding their way into general circulation. This may reflect the street value of the opioid as an incentive for this to occur as a commercial transaction. This brings into question, whether improvement can be made by checking urine drug screens to ensure that the patient who has been prescribed opioids has those opioids positive on urine drug screen. I certainly believe that all Doctors prescribing Benzodiazepines and opioids should be aware of this study and implications of this study.*