Assessment of Chronic Pain Patients in Neurology Clinic

Dr M S Chong Consultant Neurologist
Neurological Skills in Pain

• Pain is a Neurological Symptom:  
  – Assessment of underlying cause

• Not all Neuropathic Pain is the same

• Other Neurological symptoms associated with pain

• Treatment Strategies:  
  – New therapies: drugs and stimulation  
  – Combinations

• Research
Diagnosis: Clinical Assessment

• History
  – Picking up positives, significant negatives and information misfits
    • Tempo of development of symptoms
    • Thoracic spinal pain
    • Back pain worse on lying down
    • Postural headaches

• Examination
  – Full Neurological. Positive and Negative Signs
Trigeminal Neuralgia Pain

– Character: sharp shooting, stabbing, lancinating and electric shock-like

– Timing: pain abrupt and equally abrupt termination with spontaneous remission

– Site & Radiations: within trigeminal nerve territory. Mouth to ear or nose to orbit pattern

– Triggers: Mechanical or thermal in majority
Neurological Examination

Positive + Negative Symptoms/Signs:

• Sir John Russell Reynolds (1828–1896)
• Hughlings Jackson:
  – Negative: “dissolution of neural function”
  – Positive: “excitation or the release of lower levels from higher inhibitory control”
Positive Phenomena

• Allodynia:
  – Static: orange stick/ von Frey hairs
  – Dynamic: brush

• Hyperalgesia:
  – Mechanical: increase sensitivity to pin prick
  – Thermal: reduced thresholds to cold and warm pain

• Hyperpathia:
  – Repeated stimulation with orange stick
Diagnosis: Investigations

• Many patients with pain undergo:
  – “Unusual Blood” tests:
    • Antiganglioside antibodies
    • Anti-Neuronal antibodies
  – Neuroimaging
  – Neurophysiology Tests
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Diagnosis: Syndromic vs Mechanistic?

**Syndromic**
- Known disease entity
- Predictable natural history
- Tailored therapy
- Associated symptoms:
  - Autonomic features
  - Involuntary Movements

**Mechanistic**
- Predict generator of pain
- Same pathogenesis may have different symptoms
- Same syndrome may need different management
Mechanistic Classification: PHN

Primary Afferent

Irritable Nociceptor: No Sensory Loss and Severe Allodynia

Deafferented Alloodynic: Sensory Loss and Alloodynia

Deafferented Non-Alloodynic: Sensory loss and No Alloodynia
Mechanism based treatment

5% Lignocaine patches:

• 28 patients with DPN:
  – QST, Epidermal Nerve Fibre (ENF) density and distal sensory nerve conduction were performed
  – None were predictive of response to patch

• 18 patients with PHN area of max. pain:
  – 6 with irritable nociceptors, 12 completely damaged: placebo blinded crossover
  – All gained benefit: ↓ ongoing pain & alldynia

Muscle and Nerve 2006; 33: 42-48

Wasner G et. al., J Neurol. 2005; 252: 677
Are all Neuropathic Pain the same?

• Amitriptyline ineffective for:
  – HIV Neuropathy$^1$
  – Cancer Neuropathic Pain$^2$
  – Phantom Limb Pain$^3$

• Pregabalin not useful for:
  – Lumbosacral radiculopathy$^4$

1. Kiertburtz et. al., Neurology 1998; 51:1682
4. Remmers et. al., American Pain Soc Meeting Atlanta Georgia 2000 Poster 660
Neuropathic Cancer Pain: Is it all the same?

- Painful peripheral neuropathy from chemotherapy: vinca/platinum/taxanes
  - Amitriptyline (50mg) DB/PC\(^1\)
  - Nortriptyline (100mg) DB/PC/Crossover\(^2\)
  - Lamotrigine (300mg) DB/PC\(^3\)
  - Gabapentin (2.7g) DB/PC\(^4\)

3. Rao et.al., Cancer 2008; 112: 2802-8
4. Rao et. al., Cancer 2007; 110:2110-8
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Associated Symptoms

• Sensory:
  – Hypoaesthesia
  – Hyperaesthesia

• Motor:
  – Reduced Power
  – Involuntary movements

• Generalised:
  – Fatigued
  – Loss of awareness
Diagnostic Associations

• Waldenstrom’s Macroglobulinaemia:
  – Painful peripheral neuropathy
  – Dusky cold peripheries
  – Tremor hands

• Lyme Disease:
  – Painful Neuropathy
  – Rash
  – Fatigue
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Treatment for Specific Syndromes

- Trigeminal Neuralgia
- Central Pain
- Paroxysmal Hemicrania
- SUNCT
Nortriptyline & Gabapentin

- Crossover 3 arms of nortriptyline, gabapentin or combination 6 weeks each with 2 week washouts
- 56 randomised (PHN 16, DPN 40) 45 completed
- Mean Pain Scores:
  - Baseline 5.4
  - Gabapentin 3.2
  - Nortriptyline 2.9
  - Combined 2.3 (Statistically significant)
- Interesting findings:
  - Some patients failed prior therapy with tricyclics/gabapentin
  - Side-effects more with gabapentin than nortriptyline
  - Lower mean doses used in combination gabapentin 2.4g/2.1g and nortriptyline 62 mg/50mg

Gilron et. al., Lancet 2009; 374:1252-61
Combinations Best?

• Randomised controlled study 52 patients 1/52:
  – Neuropathy, plexopathy, radiculopathy

• Adjunct to opioids:
  – Gabapentin 400mg/d and Imipramine 10mg/d
  – Gabapentin 400mg/d and 800mg/d
  – Imipramine alone 10mg/d

• Combination treatment best pain relieve:
  – Total Pain Score halved
  – Daily Paroxysmal Pain Intensity reduced by 1/3
  – Rescue Opioids: 1/3 reduction frequency

Assistance in Management

• Different sub-specialities
  – Other Neuroscience Colleagues:
    • Neurosurgeons, Neurophysiologists, Neuropsychiatrists, Nurses, Neurophysiotherapists

• Adoption of drugs but less familiar...

• Use of stimulation analgesia:
  – Transcranial Magnetic Stimulation
  – Other stimulation analgesia
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Example of Neuroscience Research in Pain

- NGF gene mutations:
  - Congenital insensitivity to pain
- NaV 1.7 gene mutations:
  - Gain of function in erythromelalgia
  - Paroxysmal Extremity Pain Syndrome
  - Other syndromes?
Research

- Pathophysiology of chronic pain
- Predisposed individuals ? genetic
- Pre-emption in chronic pain?
- Animal models of chronic pain
- Role of nerve regeneration
- Channelopathies in pain
Education

• The population: pain without injury is not synonymous with malingering
• Patients: simplified models
• Medical and paramedical staff

Pre-emption always better than cure.
Pain is Inevitable BUT Suffering is Optional