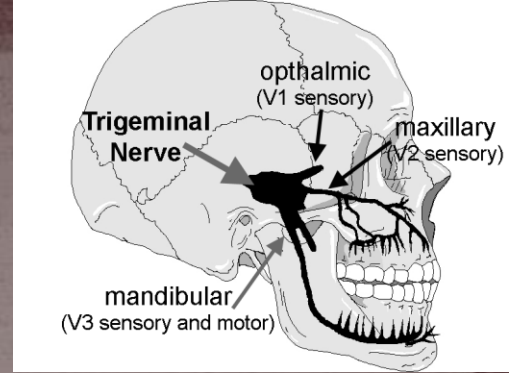


*Trigeminal Neuralgia*  
*Medical Management*  
*A/Professor Arun Aggarwal*  
*RPAH Pain Management Centre*

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# Trigeminal Neuralgia



*IASP*

*“sudden, usually unilateral, severe brief stabbing recurrent pain in the distribution of one or more branches of the fifth cranial nerve”*

# Trigeminal Neuralgia

- Intense, paroxysms of sharp, stabbing pain
  - Lasting few seconds to 2 minutes
  - Pain free between attacks
  - Attacks are stereotyped
- Precipitated from trigger
  - Light touch of the face (washing, shaving)
  - Chewing, talking, swallowing, cold
- No clinical neurological deficit
- Not caused by another disorder



# Examination



- **Normal facial and cranial nerve examination**
  - Normal power
  - Normal sensation to touch and pain
  - Normal corneal reflex
  - Normal jaw jerk
  - Flushing of the skin, lacrimation and salivation may occur
- **Trigger zone**
  - Aggravates pain
- **Facial spasm**
  - Pain evokes reflex facial spasm – “tic douloureux”

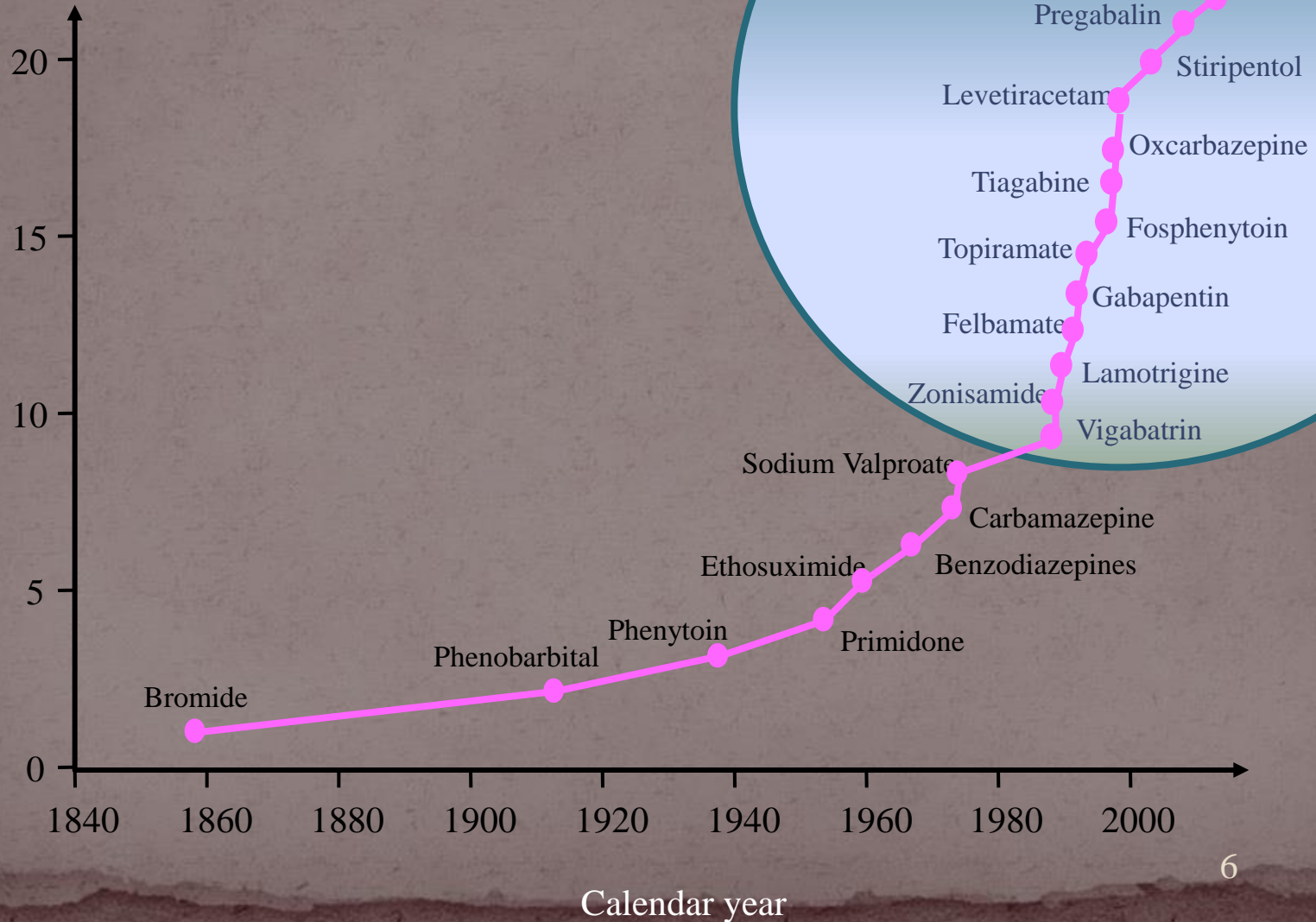
# MEDICAL THERAPY 2012



- Carbamazepine (NNT to obtain 50% relief - 1.7)
- Valproate, Phenytoin, Clonazepam
- Gabapentin, Lamotrigine, Topiramate, Oxcarbazepine
- Pregabalin, Levetiracetam, Tiagabine
- Lacosamide (Vimpat), Zonisamide
- Amitriptyline, Nortriptyline, Imipramine
- Opioids –Tramadol, Norspan, Oxycodone
- Morphine, Fentanyl, Hydromorphone
- Baclofen, Mexilitene, Clonidine
- Capsaicin cream
- N-methyl-D-aspartate (NMDA) blockers – Ketamine, Memantine
- Botulinum Toxin
- Vitamin B12

# ANTI-CONVULSANTS 2012

Anti-convulsant drugs





# ANTI-CONVULSANTS

- Used since the 1960's
- Useful for neuropathic pain
  - Pain is sharp, lacinating or burning in nature
- Specific mechanisms of action uncertain
  - Stabilises the nerve membrane by blockade of voltage sensitive Na channels, resulting in reduced ionic conductance of sodium and potassium

# Tegretol CR

- **First-line agent**

- 100mg -200 mg nocte increasing slowly to 400mg bd
- Response within a week in 65-80%
- $t_{1/2}$  4-24 hrs - steady state attained within 1-2 weeks
- Minor SE: sedation, dizziness, nausea, unsteadiness, rash
- Major SE: bone marrow suppression, liver function abnormalities, hyponatremia, Stevens-Johnson syndrome
  - December 2007 - Asian descent get a genetic blood test to test for variants in the HLA-B\* 1502 prior to commencing Tegretol
- Safest AED during pregnancy
- Serum therapeutic ranges are irrelevant
- 4 placebo controlled trials



# Oxcarbazepine - Trileptal

- Tegretol without the side effects
  - Less Na, dizziness, drowsiness and lethargy
- Slightly less potent
  - Higher doses needed
  - 75mg nocte increasing slowly to 300 mg twice a day
- 4 studies in Canada and Europe
  - As effective as Tegretol (70-80% response)
- Not subsided by PBS
  - Approx \$90 per month

# Mrs RF

- 88 yo
- TN diagnosed 30 years ago (age 58)
  - Symptoms responded well to Tegretol
- Recurrence of pain
  - GP commenced Gabapentin
  - Ongoing constant burning pain
  - Intermittent sharp electric shock pain when chews and talks
  - Increased sensitivity to touch
- Trileptal 75 mg daily – bd – 150 mg bd
  - Pain free and able to chew and talk
- Weaned off Gabapentin



# Epilim

- Better tolerated, but no clinical trials in “pain”
- Increases activity of the inhibitory transmitter GABA
- $t_{1/2}$  8-12 hrs
- 200mg nocte increasing to 400mg bd
- SE: GIT, weight gain, tremor
- Hepatic dysfunction so LFT's should be monitored

## Stereoisomers of valnoctamide (VCD)

Kaufmann 2010

- Pain relieving (anti-allodynic) activity of a CNS-active amide derivative of a chiral isomer of valproic acid (Epilim) - Diastereomers (2R,3S)-VCD and (2S,3S)-VCD
- Rats using spinal nerve ligation model of neuropathic pain
- Both showed a dose-related reversal of tactile allodynia with ED(50) values of 52, 61 and 39 mg/kg, respectively
- (2S,3S)-VCD was more potent and has a potential to become a candidate for development as a new drug for treating neuropathic pain



# Mrs LT

- 57 yo
- Left TN affecting upper jaw since 2006
  - Sharp, stabbing
  - Increased by chewing, eating and brushing teeth
  - Since May 2009, constant burning sensation lower jaw
- Dental procedures
  - No improvement
- Tegretol
  - Improved pain, but cognitive side effects
- Lyrica
  - Headaches

# Mrs LT

- Epilim commenced 200 mg nocte
  - Pain improved 6-7/10 to 4/10
- Increased to 200 mg bd after 2 weeks
  - Pain free
  - Constant burning sensation was present for over 6 months
- No side effects
- Life back and feels marvellous
- Remained pain free for next 2 years

# Gabapentin

- Used in a variety of neuropathic pain conditions
  - Prevent allodynia and hyperalgesia
  - Improves pain and sleep
- Designed as an analogue of GABA
  - Acts also on NMDA receptors
  - $t_{1/2}$  5-7 hrs – renal excretion
- Dose
  - 300mg nocte titrating up to 1800mg/day
  - Also 100mg capsule used in elderly
- SE's
  - Drowsiness, dizziness, ataxia
  - Approx \$40-80 / month



# Pregabalin - Lyrica

- **TGA APPROVED BUT NOT SUBSIDIZED for neuropathic pain**
  - On PBS for epilepsy only NOT PAIN
  - Approx \$80 / month
- Works on alpha-2-delta ligand
  - Different mode of action to Gabapentin
  - $t_{1/2}$  2.5 hrs – reaches steady state within 24-48 hours
  - Analgesic, anxiolytic and anti-convulsant
- SE's
  - Dizziness and somnolence, blurred vision
  - Weight gain and peripheral oedema
- Dosage
  - 75mg nocte increasing slowly to 300mg bd
  - Also now available in 25mg capsule for elderly

# Others

- **Topiramate – Topamax**

- Modulation of voltage-gated Na and Ca channels
- Potentiation of GABA and block AMPA receptors
- 25 mg daily increasing very slowly to 100mg bd
- Increasing use in Migraine prophylaxis

- **Levetiracetam – Keppra**

- Jorns 2009 – 10 week study in TN
- Up to 4000 mg / day – 40% improvement (1500 mg bd)

- **Clonazepam**

- Benzodiazepine - drowsiness and addictive
- Facilitates binding of GABA to its receptors
- Very good for nocturnal symptoms



# LACOSAMIDE (VIMPAT)

- Selectively enhances slow inactivation of voltage-gated sodium channels
  - Reduced hyperexcitability of membranes
- Interacts with collapsin response mediator protein-2 (CRMP-2) which blocks N-type voltage-gated calcium channel (Cav 2.2)
  - Phosphoprotein expressed in nervous system
  - Involved in neuronal differentiation and control of axonal outgrowth
- Oral bioavailability 100%
- Renal excretion
- 50 mg bd – 200 mg bd



# Mr AM

- 82 yo man
- Left V<sub>3</sub> mandibular pain since 1991
- Constant burning sensation inside mouth and tongue
  - Frequent sharp shooting pain when talks, chews, eats
- Tried Tegretol (allergy), Epilim, Amitriptyline, Phenytoin and Clonazepam
- MRI – no vascular malformation
- Oral surgeon
  - Adjustment of dentures
  - Transposition of left mental nerve – no improvement

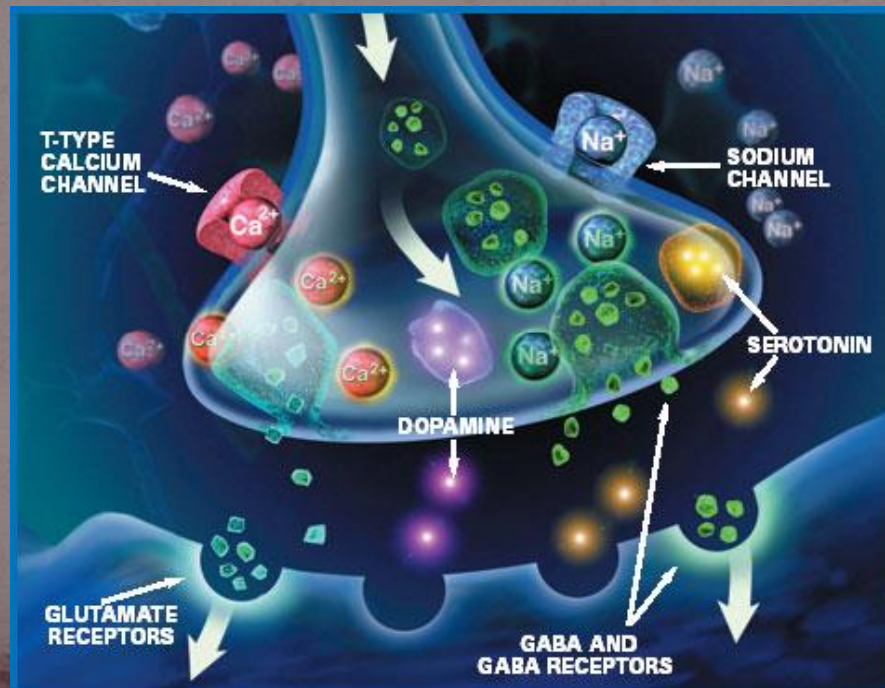
# Mr AM

- Initial review in 2006
  - Gabapentin – improved pain
  - Amitriptyline added to Gabapentin
    - Pain free for 1<sup>st</sup> time in 5 years
    - Some recurrence over next 6 months
  - Weaned off Gabapentin and commenced Lyrica
    - Improved pain but side effects on higher dose
  - Duloxetine added and Lyrica reduced
    - Pain increased as Lyrica reduced
  - Keppra then Trileptal tried – No improvement
- Vimpat (Sept 10)
  - 50 mg bd improved pain 2/10 - no sharp stabbing pain
  - May 2011 – on 100mg bd - pain manageable at 1/10



# ZONISAMIDE

- Blocks  $\text{Na}^+$  channels (similar action to Tegretol)
- Reduces T-type  $\text{Ca}^{++}$  currents
- Enhances GABA release
- Modulates glutamate-mediated synaptic transmission





# ANTI-DEPRESSANTS

## • Tricyclic anti-depressants

- Amitriptyline (Endep)
- Nortriptyline (Allegron)
- Doxepin (Deptran)
- Prothiaden

## • Selective serotonin reuptake inhibitors (SSRI)

- Paroxetine (Aropax)
- Fluoxetine (Prozac / Lovan)
- Citalopram (Cipramil)
- Sertraline (Zoloft)

## • Mixed (SNRI)

- Mirtazapine (Avanza)
- Venlafaxine (Efexor)
- Reboxetine (Edronax)
- Duloxetine (Cymbalta)
- Desvenlafaxine (Pristiq)



# Tricyclic Anti-depressants – AMITRIPTYLINE

- Also used for over 30 years for neuropathic pain
- Direct analgesic effect
  - Also relieve other symptoms, such as sleep disorder
  - Lower doses (10-25mg) required c.f 100-150mg for mood
  - Occurs faster (3-4 days) than anti-depressive effects
- SE's:
  - Anticholinergic effects
    - sedation, dry mouth, blurred vision, urinary retention
  - Life-threatening cardiovascular effects – arrhythmias
- McQuay - systematic review 1996
  - NNT<sub>3</sub> in DN, NNH 2.8

# Duloxetine

- Selective serotonin and NAR reuptake inhibitor
- Launched in Australia Sept 2009 for PAIN
- 30 mg daily for 1 month then 60 mg daily
- Increasing use and effect independent of mood effect
- Recent diabetic PN study
- Within 1 week, 50% reduction in pain in 50% of patients
- SE's:
  - Nausea, somnolence, constipation



# Mrs BB

- 66 yo
- L sided facial pain since June 2005 – TN diagnosed
- Tegretol - SE
- Epilim and Gabapentin - tremor, ataxia
  - Pain improved but ongoing constant pain and intermittent sharp stabbing pain 5-6 times per day
- Aware that distraction improves pain
- Lyrica - No improvement
- Trileptal – Rash
- Duloxetine
  - Marked (60%) improvement 7/10 – 3/10

# Non-Epileptic drugs for TN

- Aspirin, Codeine and NSAID's - Not helpful
- **Baclofen** - GABA b receptor agonist
  - Lacerating pains primarily through inhibitory effect
  - Initiate slowly, 5mg bd (increase up to 40-60mg/day)
- Side effects:
  - CNS depression
    - sedation, confusion, dizziness
  - Nausea
  - Postural hypotension

# Topical agents - Capsaicin

- Naturally occurring alkaloid
  - works on small cutaneous c-fiber afferents
  - stimulating then blocking fibres
  - depleting substance P
  - reducing membrane excitability
  - blocking axon transport
- Low concentration, 0.075% topical cream
- May burn for the first several weeks



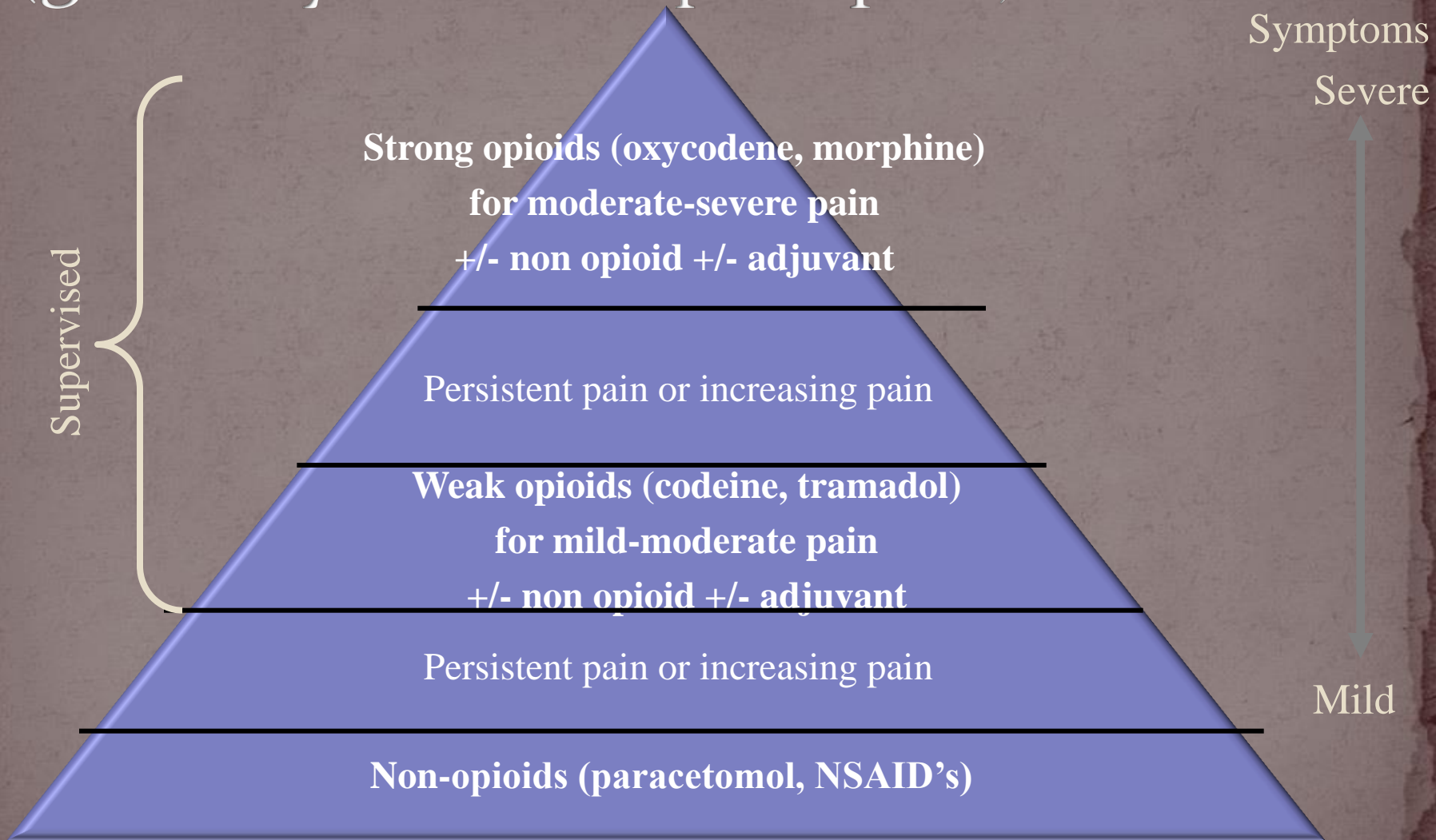
# Opioids Place in Persistent Pain

- Beneficial in some patients
  - Demonstrated good efficacy outcomes
  - Only moderate side effects
  - Low risk of abuse or addiction
- Longer acting opioids are better than short-acting
- Patient selection and close follow-up important
- Efficacy of acute (IV) to opioids in TN
  - Effective but dose dependent response
  - Pain intensity reduced by 13 points compared to placebo
    - ie 20-30% reduction

# Opioids

- 2 trials in neuropathic pain c.f other drugs
  - Gilron 2005
    - Non-significant superiority of Morphine to Gabapentin
  - Raja 2002
    - Non-significant superiority of morphine and methadone to nortriptyline - 4.4 vs 5.1 - low numbers 120
- Concerns:
  - Adverse effect profiles
  - Potential for abuse, addiction and hormonal changes
- Generally, discourage use in neuropathic pain

# WHO Analgesic Ladder (generally for nociceptive pain)





# TRAMADOL

- A unique drug
  - Racemic with each isomer acting differently but synergistically
    - CNS-active analgesic
    - (+)-Tramadol is inactive, but is metabolised to M1
      - M1 metabolite is a very weak mu-opioid agonist
      - Does not prevent opiate withdrawal in opiate dependant patients
    - (-)-Tramadol - inhibition of noradrenaline reuptake and stimulation of serotonin release at the spinal level
- Quick acting, slow release, extended, IV or IM
- Side effects
  - Not opiate side effect profile, rather a serotonergic side effect profile,
  - CNS (somnolence, confusion, dizziness) & GIT (nausea)
    - More frequent with quick acting capsule
  - Small risk of seizures (contraindicated if seizure history)

# Buprenorphine

- Partial agonist with a long duration of action
  - 30 x as potent as morphine
  - Enjoying a renaissance in use with opiate addict maintenance (Alternative treatment to methadone)
- SE's
  - Application site skin irritation (rotate sites) – steroid cream
  - Headaches
  - Dizziness, drowsiness, nausea, constipation
- Low dose patches very useful in elderly patients with musculoskeletal degenerative disease
  - 5mcg/hr weekly – 10 and 20 (max 40mcg/hr)



# TARGIN

- Controlled release oxycodone and naloxone
  - Naloxone binds competitively to opioid receptors in gut
    - Prevents or reverses the effects of oxycodone in the GIT
    - Prevents opioid-induced constipation
  - 97% metabolised during 1<sup>st</sup> pass in the healthy
  - 87% of oxycodone passes into the circulation unchanged
- Oxycodone exerts central analgesic effect equivalent to as if oxycodone was administered alone
- Doses
  - 10/5    20/10    40/20 mg bd



# TARGIN

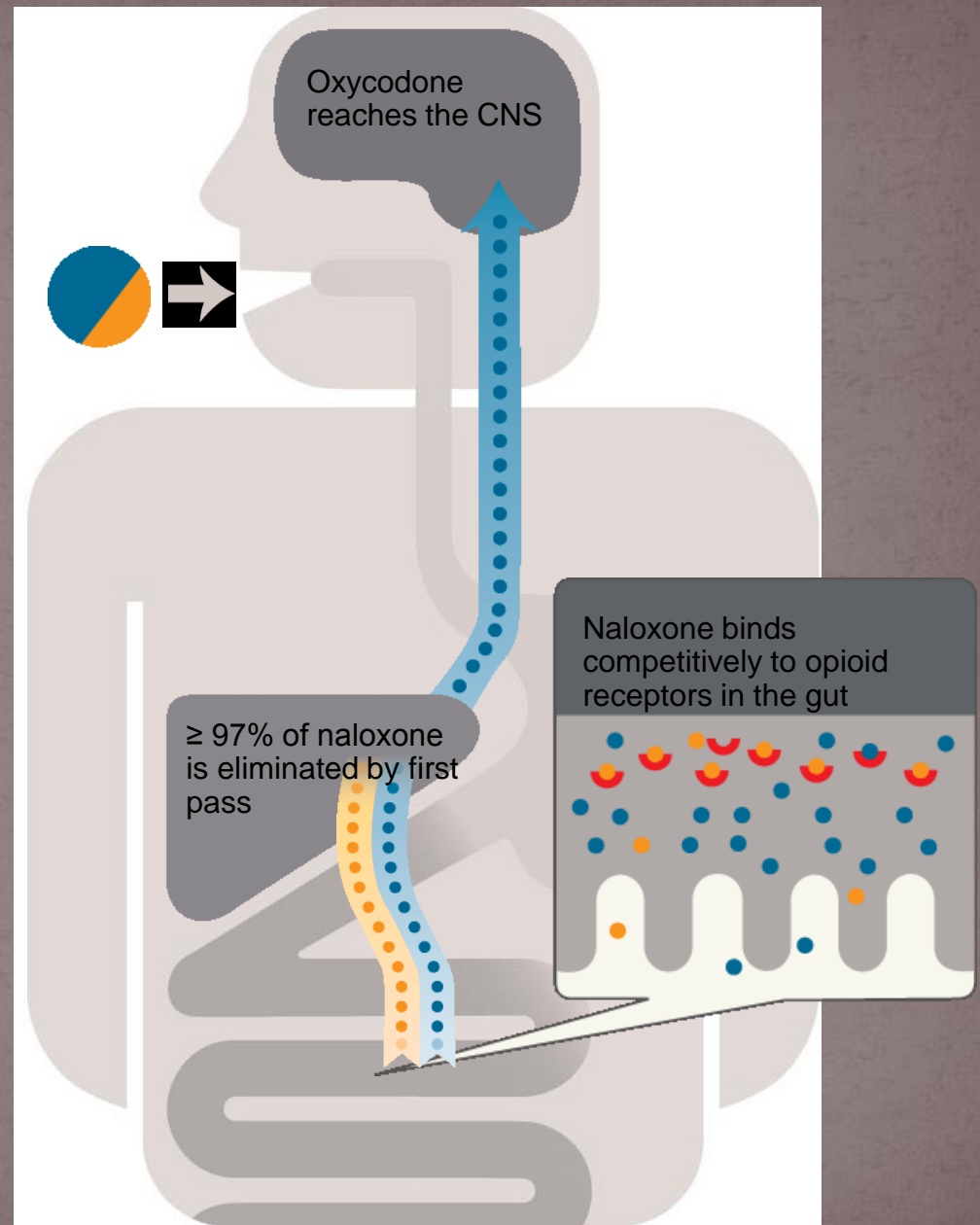
## Mode of action

Oral TARGIN® tablets deliver 12-hourly oxycodone CR and naloxone CR

High binding affinity, naloxone prevents or reverses the effects of oxycodone in the GI tract

During first pass in the healthy liver, at least 97% of naloxone is eliminated, while up to 87% of oxycodone passes into circulation

The oxycodone in TARGIN® tablets reaches the CNS where it exerts an analgesic effect equivalent to oxycodone CR administered alone



# Pharmacological Treatments

Initial Analgesic options	<ul style="list-style-type: none"><li>• Paracetamol (1000mg qid)</li><li>• Paracetamol + codeine (2 x 500mg/30mg qid)</li><li>• Tramadol Quick Acting Capsules (50mg qid)</li></ul>
Pain lasting > 5 days	<ul style="list-style-type: none"><li>• Tramadol SR (100-200 mg bd)</li><li>• Duro-Tram XR (100-300mg nocte)</li><li>• Buprenorphine patch (5-20 ug/hr weekly)</li><li>• Oxycontin 10-20 mg bd or Targin 10/5 – 20/10 bd</li><li>• Fentanyl patch 12-25 mcg every 3 days</li></ul>
Nocturnal Pain (TCA antidepressant)	<ul style="list-style-type: none"><li>• Amitriptyline (10-25mg nocte)</li><li>• Nortriptyline (10-25mg nocte)</li><li>• Doxepin (25-50mg nocte)</li><li>• Clonazepam (0.25-0.5mg nocte)</li></ul>
Daytime Pain (Adjuvant AED)	<ul style="list-style-type: none"><li>• Epilim (200-400 mg bd)</li><li>• Gabapentin (100 – 600 mg tds)</li><li>• Pregabalin (25-300 mg bd)</li><li>• Duloxetine (30-120 mg mane)</li></ul>

# Intravenous Phenytoin

- Blocks sodium channels
  - Inhibits pre-synaptic glutamate release
- **McCleane GJ. Anesth Analg 1999**
  - Randomised, D-B, P-C study of 20 patients with acute flare-ups of neuropathic pain
  - 2h placebo infusion cf 15mg/kg Phenytoin (av. 1000mg)
  - Slow infusion – given over 1 hour
  - Reduced burning, shooting pain and sensitivity for 4 days
  - Alkaline pH – burning pain and IV site irritation



# Mrs GL

- 46 yo
- TN Dx 11 year ago (last attack May 2008)
- 5<sup>th</sup> episode of pain on son birthday (died 18/12 earlier)
- 5 days of R V2 intermittent electric shock – minutes
- Tegretol and Lyrica in the past
  - No improvement
- Gabapentin usually relieves pain
  - 400 mg tds – no improvement
- IV Phenytoin
  - Relieved pain for 3 hours then Panadeine Forte effective

# Intravenous Lignocaine

- Sodium channel blocker
  - Reduces spontaneous and evoked responses in a variety of neuropathic pain conditions
- 2000mg (2 x 10 ml x 10% xylocard – lignocaine HCl)
  - 40mg/ml
  - 1mg/kg/hr
  - Monitor BP and HR
- Relief maximum 20 minutes after end of infusion and persisted for over 10 hours

# Intravenous Valproate (Epilim)

- Increases inhibitory neurotransmitter GABA
  - Binds to GABA receptors
  - Prolongs repolarisation of voltage-gated sodium channels
- **Stillman MJ. Headache 2004**
  - 130 patients with headache
  - Valproate dose ranged from 300-1200mg
  - 57.5% responded to the first treatment
- **Schwartz TH. Headache 2002**
  - IV Valproate 15mg/kg followed by 5kg/kg every 8hr
  - Improvement in headache in 80%



# Intravenous Keppra

- Hamza 2009
  - Oral Keppra in lumbar radiculopathy pain
  - Pain scores decreased from 7.1 at baseline to 4.2 at week 12
  - Improvements in general activity, ability to walk and mood
- IV infusion
  - 1000 mg over 15 min
- SE:
  - Dizziness, somnolence, fatigue, headache

# 'Wind Up'

- Prolonged response to a noxious stimulus
  - Dramatic increase in duration and magnitude of cell responses, but input into spinal cord remains the same
- Activation of:
  - Neurotransmitters (glutamate, substance P, NO)
  - Receptors ( NMDA)
  - Inflammation and chemicals (neurotrophin)
  - Genes (Cfos)

# NMDA receptor antagonists

- **Ketamine**

- Non-competitive NMDA antagonist - dorsal horn of SC
- Inhibits binding of excitatory amino acids (glutamate) to NMDA receptor, blocking transmission of pain
- Highly lipid soluble – crosses BBB rapidly

- **Oral NMDA receptor antagonists**

- Dextromethorphan and Amantadine
- Higher dosages required
  - e.g. for Dextromethorphan as a cough suppressant - 40-80mg c.f pain - 400mg/day



# Ketamine – ‘Special K’



- Developed in 1963 as safer alternative to PCP
- **Anaesthetic with:**
  - Dissociative (separates perception from sensation)
  - Analgesic, sedative and amnesic properties
  - Used in veterinary medicine
  - Odorless, tasteless, undetectable in drinks
- 80% hepatic metabolism to active Norketamine
  - Orally as only 1/3 analgesic potency of ketamine)
  - Cognition side effects and hallucinations at high doses

# Ketamine



- **Ketamine infusion**
  - 200mg in 50ml plus
  - **Lignocaine 10%** (sodium channel blocker) 2000mg in 20 ml
  - Generally run at 2ml/hr initially over 3-5 days
  - If effective
    - Ketamine lozenges – 25mg three times a day initially
- **Ketamine drops** – not available yet
- **Oral Ketamine** – poorly absorbed
- **Topical Ketamine gel** - 0.093 mg/kg – 9.33 mg/kg
- **Ketamine lozenges**



# Mrs CH

- 52yo Registered Nurse
  - Right TN Dx 1997
    - Lacinating pain in 2<sup>nd</sup> and 3<sup>rd</sup> division
  - Responded well to Tegretol and Epilim
    - Developed drug induced hepatitis
  - Microvascular Decompression 1998
    - Pain free for next 4-5 years (normal facial sensation)
- Dec 2003, pain recurred
  - Commenced on Gabapentin – no response
  - 2<sup>nd</sup> microvascular decompression Aug 2004
    - No evidence of vascular compression, nerve “pinched”
- Pain free for 3 months then recurred



# Mrs CH

- R facial pain in all divisions of V nerve
  - Sharp, shooting, knife-like lasting for seconds
  - Aggravated by touching face, chewing, talking, smiling, blinking, blowing nose, applying make up
  - Increased sensitivity to touch over face
- Canberra hospital in Dec 2004
  - 5 day Lignocaine infusion revealed pain but recurred once infusion ceased
- Subsequently tried:
  - Endone, MS Contin, Baclofen, Mexilitine
- Stereotactic Radiotherapy in March 2005
  - Considered palliative rhizolysis or radiofrequency ablation
    - Permanent sensory loss and pain relief for 2-3 years only
  - Gabapentin 600 mg and Lamotrigine 150 mg 6 times a day

# Mrs CH

- Initial Consultation 2006
- Admitted to RPAH in February 2006
  - Ketamine and Lignocaine infusion
    - Improved pain within 24 hours
  - Reduced Gabapentin and Lamotrigine within 3 days
    - 50% to 3 times a day
- Discharged home pain free
  - Ketamine lozenges 25 mg three times a day



# Mrs CH

- March 2006 (4 weeks post)
  - Remained pain free
  - Able to touch face, rub cream, blow nose (unable to do for over 2 years)
    - Ceased Gabapentin and reduced Lamotrigine to 100mg tds
    - Feels less drowsy and has more energy
    - 3 months later ceased Lamotrigine
    - Able to wear make-up and no pain with wind blowing on face
- December 2006 – (nearly 12 months post infusion)
  - Leading a completely normal life, without pain worry
    - Ketamine 25 mg three times a day only
- December 2008
  - Ceased Ketamine Jan 2008
  - Accidentally hit face 2 months later – recurrence of pain
  - 4-5 episodes only in 6 months, lasting seconds when washes face in shower
- June 2011
  - 3 month recurrence of right facial sharp, stabbing pain on touch and wind
  - Anxiety +++ about pain increasing in severity
  - Considered Trileptal, but drug induced hepatitis so Tegretol
  - Duloxetine 30 mg daily - pain free again



# Vitamin B<sub>12</sub>

- Used by the body in the production of myelin
- Gross deficiencies
  - Lead to nerve damage (pain and inflammation)
  - Beef, lamb, eggs, liver, oysters
- Parenteral B<sub>12</sub> or oral 1000 micrograms daily
  - Methylcobalamin
  - Help regenerate myelin and nerve cells, even in non-deficient
- Initial studies (1940's) -promising results
- Recent study in TNA also promising
- Talaei 2009
  - Parenteral vitamin B(12) vs nortriptyline in DPN – 100 patients
  - Pain decreased 3.6 on VAS in vitamin B<sub>12</sub> and 0.8 in Nortriptyline

# Vitamin B<sub>12</sub>

Wood & Aggarwal

Group	B12 Serum level (pgm/L)	Trigeminal Neuralgia patients	Other Facial Pain patients	
1	<106	0	0	
2	106-200	13	2	
3	201 - 300	18	11	
4	301 - 400	14	4	
5	401 - 450	5	2	
6	> 450	7	0	
Total		57	19	76 patients

20% were vitamin B<sub>12</sub> deficient (<200pg/ml)  
71 % had low vitamin B<sub>12</sub> levels (200-450pg/ml)

# Botulinum Toxin



- Turk et al Aug 2005 - Clin NeuroPharm
  - 8 patients with TN
  - 100 u of Botox in 2 ml N saline
  - 50 u injected just above and below the zygomatic arch at a depth of 1.5 to 2 cm
- Reduction in pain within hours or days in all after the injection – 3.2 +/- 2 days

• Time	0	1 week	2 month	6 month
• VAS	4.0	2.9	1.9	1.2



# Botulinum Toxin

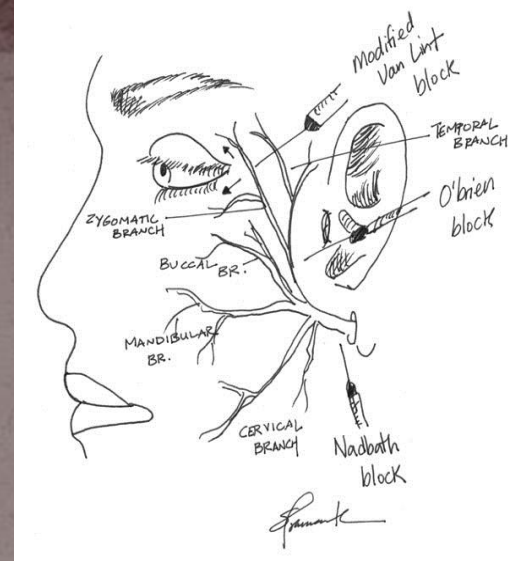
- Allam N. Clin J Pain 2005

- 75 YO man with intractable TN
- Not controlled with T, A, Gly or Phenol blocks
- **2 units SC** into 8 points along V<sub>1</sub>/V<sub>2</sub> territory

• Days	0	7	30	60	90
• VAS	82	54	25	25	45

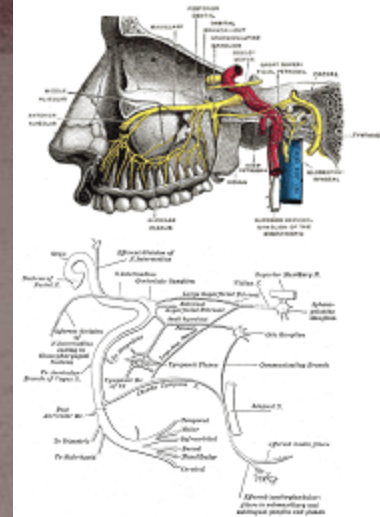
- Zuniga 2008

- 12 patients with TN
- 2.5 units injected into facial muscles
- 20-50 units into trigger zones – masseter muscle if V<sub>2</sub>
- 10/12 significant improvement for 60 days



# Spheno-palantine Ganglion

- The SPG is the largest group of nerves outside brain and is located in the sphenopalatine (pterygopalatine) fossa at the back of the nose
- It receives sensory connections from V2 with some autonomic connections to the facial Nerve (VII)
  - Upper cervical (C2,C3,C4,) roots have some indirect connection with trigeminal system via maxillary nerve
    - Cause "referred" pain to head and facial, and vice versa
- SPG block can be very effective in facial pain and headache





# Mrs SB

- 76 yo
- TN Diagnosed 25 years ago
- MVD 20 years ago
- Under care of pain specialist
  - Norspan patch 10 weekly, Tramadol SR 200 mg bd
  - Gabapentin 600mg tds and Lyrica 150 mg bd
  - Intermittent pain, but manageable
- 5 day history of severe frequent pain – left V<sub>2</sub>

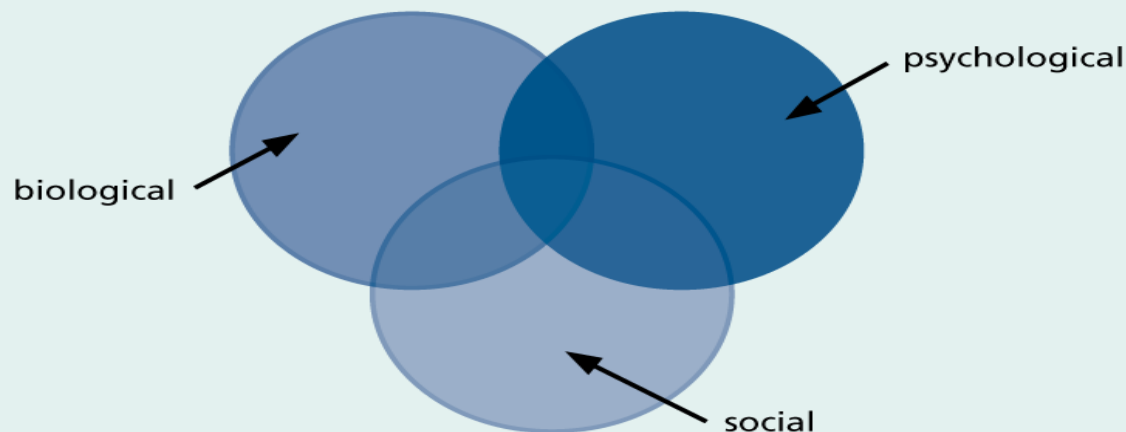


# Mrs SB

- Admitted to Concord hospital Feb 2010
- IV Epilim 1000mg continuous infusion daily
  - No improvement
- Trileptal 150 mg daily increasing to 150 mg twice per day
  - No improvement
- IV Ketamine and Lignocaine infusion for 5 days
  - Pain Free within 12 hours
  - Pain recurred once infusion ceased
- Left spheno-palantine ganglion block Feb 2010
  - Pain free over 12 months
  - Pain recurred Aug 11 – referred for repeat block

# UNDERSTANDING PAIN

- Effective pain management requires comprehensive assessment which incorporates:
  - Biological – neuropathic rather than nociceptive
  - Psychological – anxiety, depression, negative thoughts
  - Social factors - cultural, financial, isolation



# Pain Clinics

- **Does not imply “Pain is not Real”**
  - When pain persists beyond healing or with no cause, it is often assumed patient is willingly aggravating the pain  
**This is rarely the case**
  - Pain is a perception, which is filtered through the brain
- **Multidisciplinary treatment**
  - 1<sup>st</sup> pain clinic to include psychological component –1976
  - Cognitive components are crucial to the treatment
    - Reduce pain but also improve mood and decrease disability
  - Medical, physical, behavioural, emotional, vocational, social



# AIMS OF TREATMENT

- Decrease pain and suffering
- Improve physical and psychological function
- Maximise participation in daily activities
- Improve emotional well-being
- Provide hope, coping skills and confidence
- Minimise time spent away from work
- Increased self-reliance
- Achieve sense of control – PAIN MANAGEMENT

# PAIN CLINIC TREATMENTS

- Investigations and referrals
- Medications
  - Nociceptive
  - Anti-neuropathic
- Anaesthetic blocks or TENS
- Physical therapy and exercise program
- Occupational therapy
- Psychiatric or D & A review
- Psychological management
  - Meditation / relaxation
  - Pain Education Program
- Implantable drug pump and spinal cord stimulation



# MEDICAL THERAPY 2012



- Carbamazepine (NNT to obtain 50% relief - 1.7)
- Valproate, Phenytoin, Clonazepam
- Gabapentin, Lamotrigine, Topiramate, Oxcarbazepine
- Pregabalin, Levetiracetam, Tiagabine
- Lacosamide (Vimpat), Zonisamide
- Amitriptyline, Nortriptyline, Imipramine
- Opioids –Tramadol, Norspan, Oxycodone
- Morphine, Fentanyl, Hydromorphone
- Baclofen, Mexilitene, Clonidine
- Capsaicin cream
- N-methyl-D-aspartate (NMDA) blockers – Ketamine, Memantine
- Botulinum Toxin
- Vitamin B12



# CUSTOMISING TREATMENT

## The search for Pain Control

Right patient(s)

Right drug(s)

