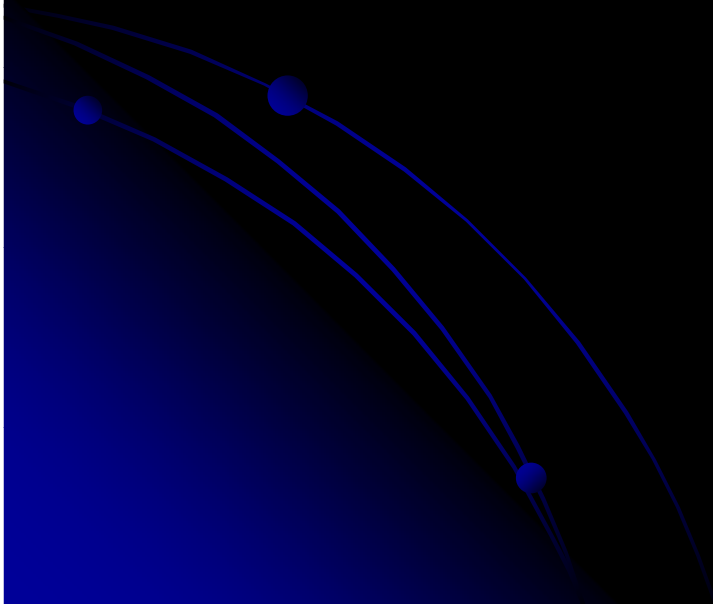
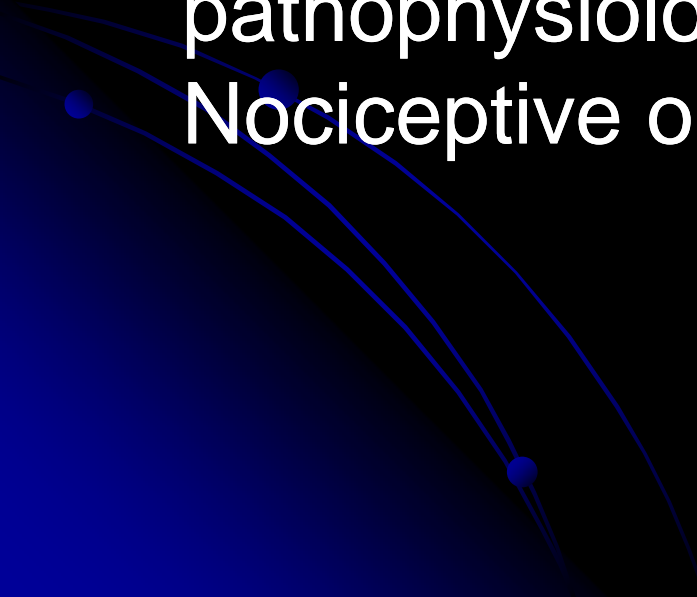


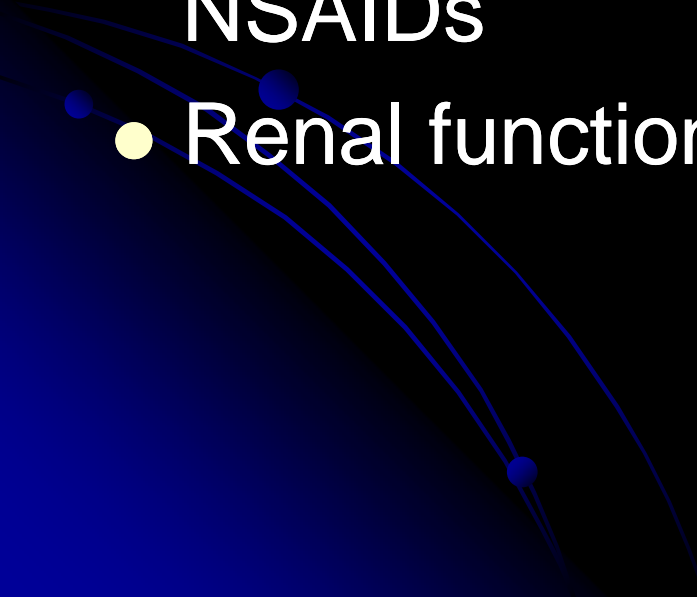
Pharmacotherapy and Interventional pain management



Pain Management

- Pain is subjective
 - Physical , Psychological, Social, Spiritual issues
 - Treatment :- Understanding pathophysiology of pain (Neuropathic , Nociceptive or Mixed)
- 

Nonsteroidal anti-inflammatory drugs

- M.O.A.-Inhibits COX,
 - Guidelines:Non selective NSAIDs,first line agent .
 - Benefit vs risk ratio – non selective NSAIDs
 - Renal function monitoring,GIT effects.
- 


PHARMACOTHERAPY

- Opioids with NSAIDs – tramadol, codeine, hydrocodone, oxycodone
- CODEINE-Dose -30 to 60 mg every 4th hourly.

Activation by CYP2D6-Absent in 15% white population.

Oral bioavailability 40%, peak effect in 1 hour.

TRAMADOL

- Mild to moderate nociceptive and neuropathic pain
 - Dose -50 to 100 mg orally, every 4 to 6th .
 - Maximum recommended dose-400mg/day
 - Side effects-dizziness, nausea constipation.
- 

ADJUVANTS

- TCAs- amitriptyline, 10 to 150mg
- SNRIs - duloxetine, 60mg/day
- Anticonvulsants-gabapentine, 100 to 1200mg ,max;3600mg

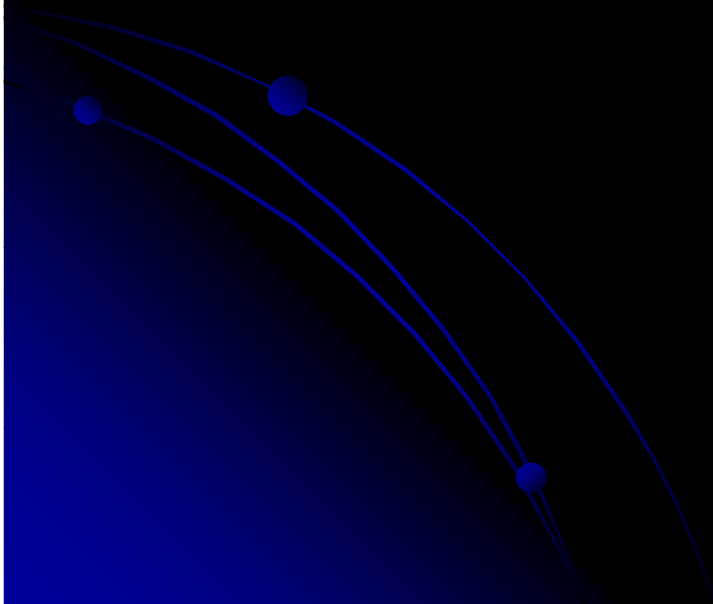
Pregabalin, 25 to 200 mg,max 600mg

Carbamazepine, 200 to 800mg, 1600mg

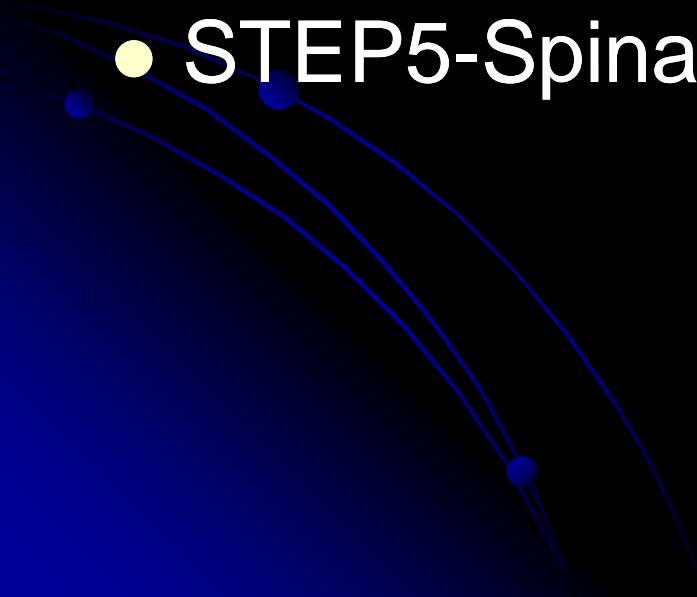
Neuropathic pain

- Nerve compression
- Nerve injury
- Central pain.

NSAIDs and opioids – D.O.C.



TREATMENT PLAN

- STEP 1- Cortisones.
 - STEP2- TCAs or anti-epileptic.
 - STEP3- TCAs and anti-epileptic.
 - STEP4- NMDA receptor antagonist.
 - STEP5-Spinal analgesia.
- 

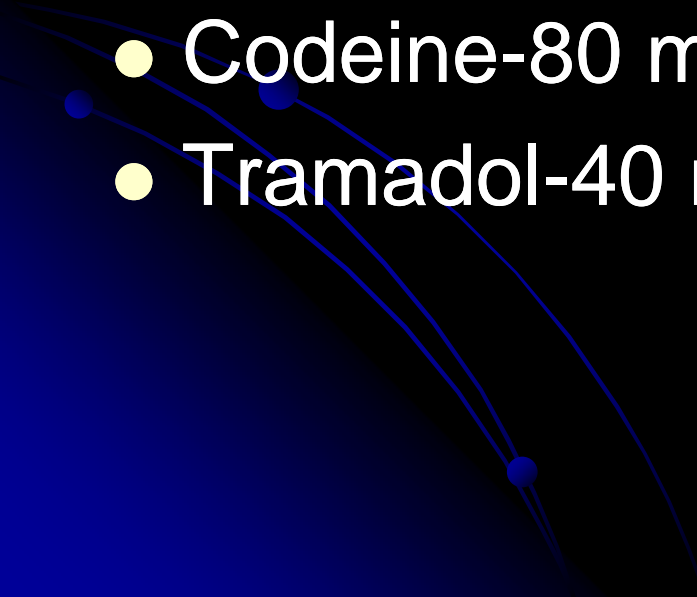
Nociceptive pain

- Cramps
 - Muscle relaxant
- Somatic eg. soft tissue, bone pain.
 - NSAIDs +opioids
- Visceral eg liver capsule pain.
 - Opioids+NSAIDs



Stimulation of nerve endings.

EQUIANALGESIC DOSE

- Morphine-10 mg
 - Meperidine-100 mg
 - Oxycodone-7.5 mg
 - Methadone-10-20 mg
 - Codeine-80 mg
 - Tramadol-40 mg
- 

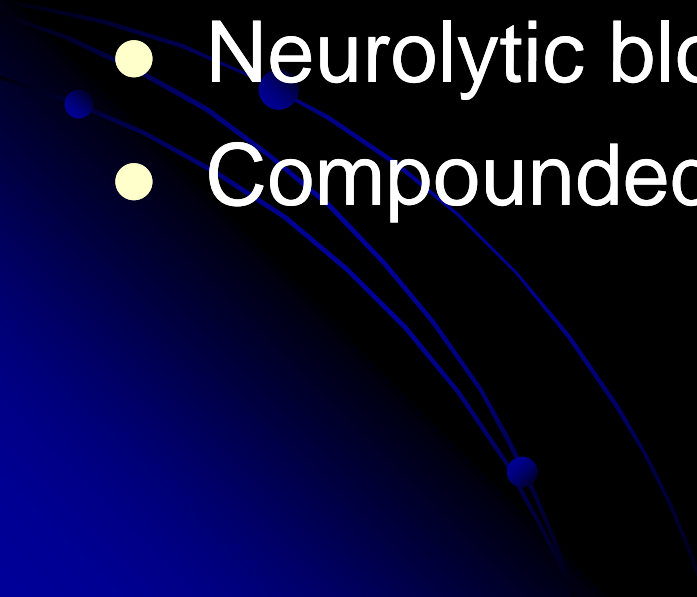
Cancer Pain Syndromes

- Bone metastasis
- Tumor compression of an organ
- Plexopathies
- Peripheral neuropathies
- Postherpetic neuralgia
- Mucositis

Treatment of Cancer Pain



Advanced Treatments

- Intraspinal opioid administration
 - Radiofrequency ablation
 - Vertebroplasty/kyphoplasty
 - Neurolytic blocks
 - Compounded medication
- 

Intraspinal Opioids

- Intrathecal vs epidural opioid administration
- Dose conversion intrathecal to po
1mg : 300mg
- Implanted programmable pump with several programming options
- Fewer side effects

Intraspinal Opioids

- Patient Selection:
Intractable pain > 5/10
- Daily PO MSO4 equivalent of > 200mg
w/ or w/out intolerable SEs
- Intolerable SEs @ lower doses

Radiofrequency Ablation

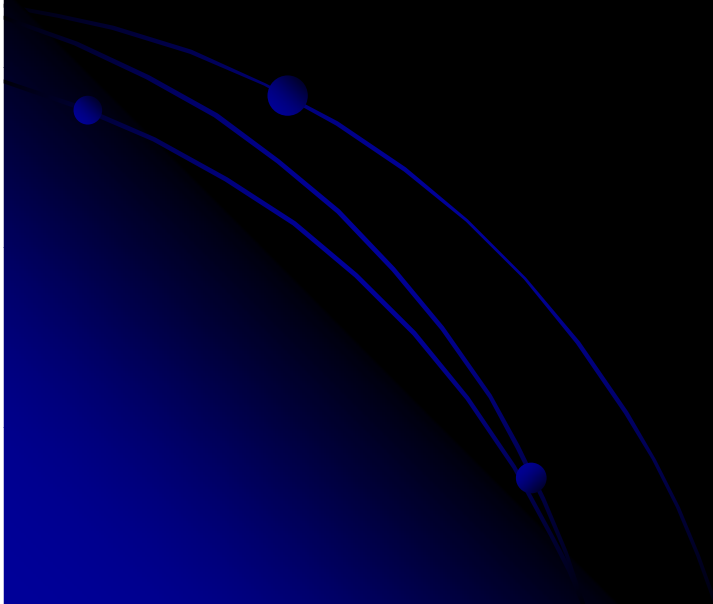
- High frequency, alternating current emitted through electrode placed w/in tumor via probe
Tissue heated to 113° for 10-15 min
- 1st reported 1990
- Liver, lung, kidney, bone, heart, breast, adrenals
- Leads to cell death through heat

Radiofrequency Ablation

- Local tumor debulking w/ pain relief
 - Percutaneous guided
 - Outpatient
 - No bone marrow exposure to external beam radiation
- Minimal SEs

Neurolytic blocks

- Phenol 5%to 6%-painless injection
- Alcohol 95%and above-painful.
- Patient identification



Neurolytic Blocks

- Injection of alcohol or phenol to deaden the nerve causing pain
- Celiac plexus block (pancreatic CA, CA of upper abdomen); T12-L1
- Superior hypogastric plexus block (pelvic tumors), L5-S1

Partnering with Other Specialists for Pain Management

- Pain Management Specialist is valuable resource in pain physiology/ pharmacology & providing additional treatments

Interventional Radiologist is valuable resource in providing additional treatments

- T-Together
- E-Everyone
- A-Achieves
- M –More

Pain management is TEAM work.



