

# Pain after amputation and related pain exam topics

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# Aims of session

Some pain exam topics in last 2/3 years:

persistent post-op pain,  
acute on chronic pain,  
use of IT opioids.

## Question 8 (Yellow Book)

A 45-year-old patient is due to have an elective open hemicolectomy for diverticular disease. He has chronic abdominal pain for which he has been using fentanyl patches (100 mcg/hour) for the last 10 months.

- How would you manage his postoperative pain? (10 marks)
- What are the additional perioperative implications if the patient is on high dose sublingual buprenorphine instead of fentanyl patches? (3 marks)
- What doses of oral tramadol, oral codeine and oral oxycodone are equivalent to 10mg of oral morphine? (3 marks)
- What other precautions should be taken if the patient has a spinal cord stimulator fitted? (4 marks)

## Question 9 (Orange Book)

You are called to see a patient who has had a below knee amputation 24 hours ago. Despite using a patient controlled analgesia (PCA) pump with intravenous morphine he is still in pain.

- Why might his pain control have become inadequate? (6 marks)
- How would you re-establish optimal pain control? (6 marks)
- What features could indicate that this patient is suffering from post-amputation pain syndrome (phantom limb pain)? (3 marks)
- What further pharmacological options are available for managing post-amputation pain syndrome? (5 marks)

## Question 2 SAQ (Blue Book)

A 63 year old man has had an elective laparotomy and removal of intestinal tumour in an enhanced recovery setting. He has had a single shot spinal with an intrathecal (IT) opioid.

- What other methods could be used to control postoperative pain in this patient? (3 marks)
- Describe the mechanism of action of IT opioids. (5 marks)
- List the principal side effects of IT opioids. (6 marks)
- What factors may increase the risk of postoperative respiratory depression following administration of IT opioids? (6 marks)

# Aims of session

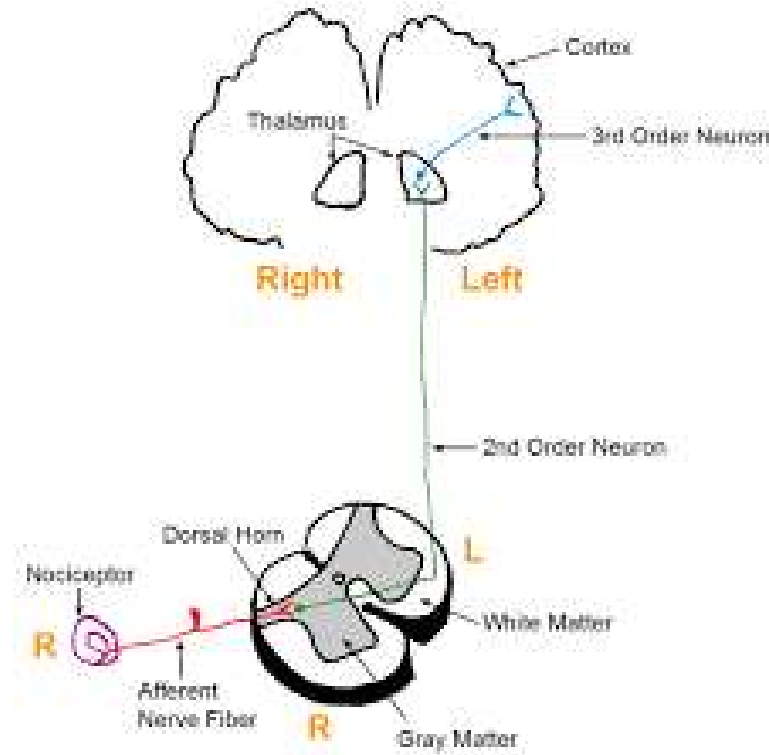
- Use principles of post-amputation pain to also cover
  - Phantom limb pain
  - Non-medical pain management strategies
  - Acute on chronic pain
  - Opioids
  - Persistent post-op pain

# Objectives

- Post-amputation pain summary (BJA article)
  - Non-medical management strategies
- Patient with pre-op chronic pain having an amputation
  - Acute on chronic pain
  - Intra-op opioids
  - Post-op analgesia
- Patient who develops chronic pain post-amputation
  - Chronic post-surgical pain

# Pain after amputation BJA Ed March 16

- Patients:
  - ASA 1,2
  - ASA 3,4
- Pain physiology:
  - nociceptive
  - neuropathic



# Pain after amputation BJA Ed March 16

- Operative analgesia
  - Regional
    - Neuraxial
    - Peripheral
  - Simple
  - Opioids
  - Antineuropathic



- Causes of post-op pain:
  - Mechanical pain
  - Stump pain
    - acute, chronic
  - Phantom pain



# Pain after amputation BJA Ed March 16

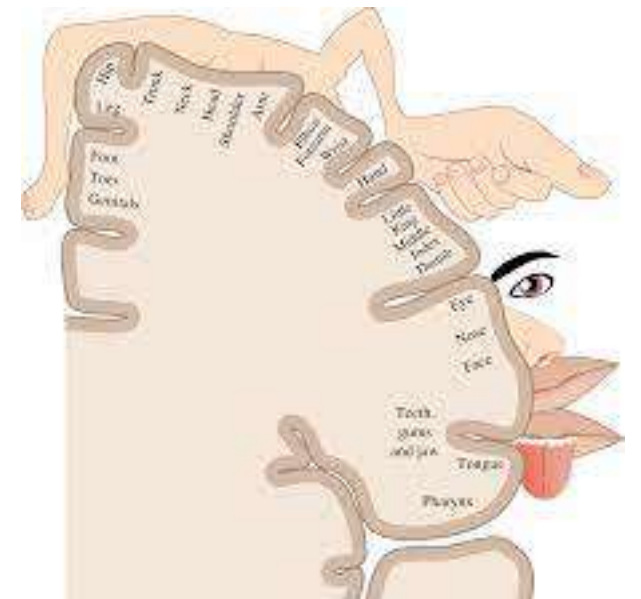
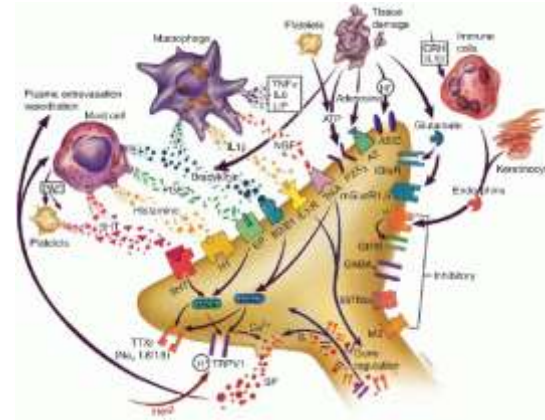
- Phantom Limb Pain

- Risk factors

- Patient factors
- Surgical factors

- Pathophysiology

- Sensitisation
- Cortical reorganisation



# Pain after amputation BJA Ed March 16

- Phantom Limb Pain
  - Prevention
    - Pain management
  - Treatment
    - Multidisciplinary
    - Physical, Psychological, Pharmacological





# Patient with pre-op chronic pain having an amputation

- 75 M
- Diabetes, PVD, HTN, AF, depression.
- Chronic pain: mechanical low back pain, peripheral neuropathy
- Analgesics:
  - Gabapentin 900mg TDS, co-codamol 60/1g QDS, Buprenorphine 20mcg patch.
- Ischaemic L lower limb, failed vascular surgery: for below-knee amputation

# Patient with pre-op chronic pain having an amputation

- **Pre-op considerations**

- Pre-existing analgesics...

- 10 mg Morphine is approximately

- Codeine 90mg – 100mg
      - Tramadol 100mg
      - Oxycodone 5mg

- Usual doses

- Codeine 30mg is 3mg Morphine
      - Tramadol 50mg is 5mg Morphine
      - Oxycodone 5mg is 10mg Morphine
    - Buprenorphine patch 10mcg = 20mg Morphine
    - Fentanyl patch 25mcg = 75mg Morphine

# Patient with pre-op chronic pain having an amputation

- **Pre-op considerations**

- **Intra-op plan**

- Regional

- Spinal anaesthetic with Intra-thecal diamorphine:
      - Pharmacology
      - Physicochemical
      - Side-effects

- Nerve catheter

- Simple

- Opioids

- Antineuropathic

# Patient with pre-op chronic pain having an amputation

- **Pre-op considerations**
- **Intra-op plan**
- **Post-op analgesia**
  - Multimodal
    - Simple
    - Opioids
    - anti-neuropathics
    - Regional (nerve catheter)

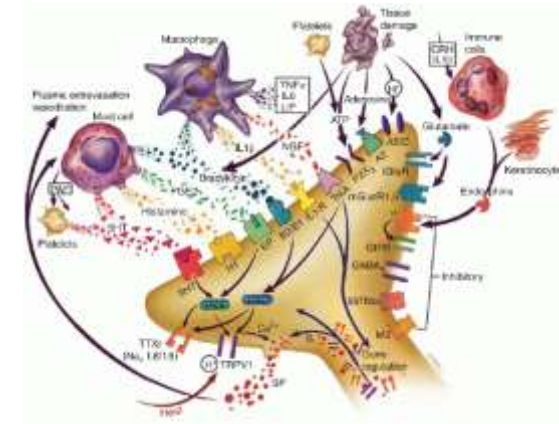
# Patient who develops post-op chronic pain

- 20 F
- ASA 1
- No regular medications
- Involved in car accident, trauma to L lower limb; for above-knee amputation

# Patient who develops post-op chronic pain

- 3 months later has persistent pain
  - Persistent post-surgical pain
- Associated surgeries:
  - Amputation
  - Thoracotomy
  - Mastectomy
  - Hernia
  - cholecystectomy

- Pathophysiology
  - Nerve damage
  - Peripheral, central sensitisation
  - Tissue damage



# Patient who develops post-op chronic pain

- Risk factors for development
  - Pre/ Intra / Post-operative
- Prevention
  - Pain management
- Treatment
  - Multidisciplinary
  - Physical, psychological, pharmacological

# Learning points

- Lots of topics covered – lots of overlap
- Pathophysiology of pain buzz words:
  - peripheral and central sensitisation, cortical reorganisation
- Cover all analgesic classes
  - simple, opioid, antineuropathic, regional
- pain management strategies
  - physical, psychological, pharmacological
- Opioid conversion doses for codeine and tramadol 10%



# References

- Pain after amputation BJA Ed 2016
- Perioperative care for lower limb amputation in vascular disease BJA Ed 2011
- Chronic post-surgical pain BJA Ed 2010
- Intrathecal opioids in the management of acute post-operative pain BJA Ed 2008
- Dose equivalents and changing opioids: [fpm.ac.uk](http://fpm.ac.uk)