

# Neuropathy and Management of Nerve Pain

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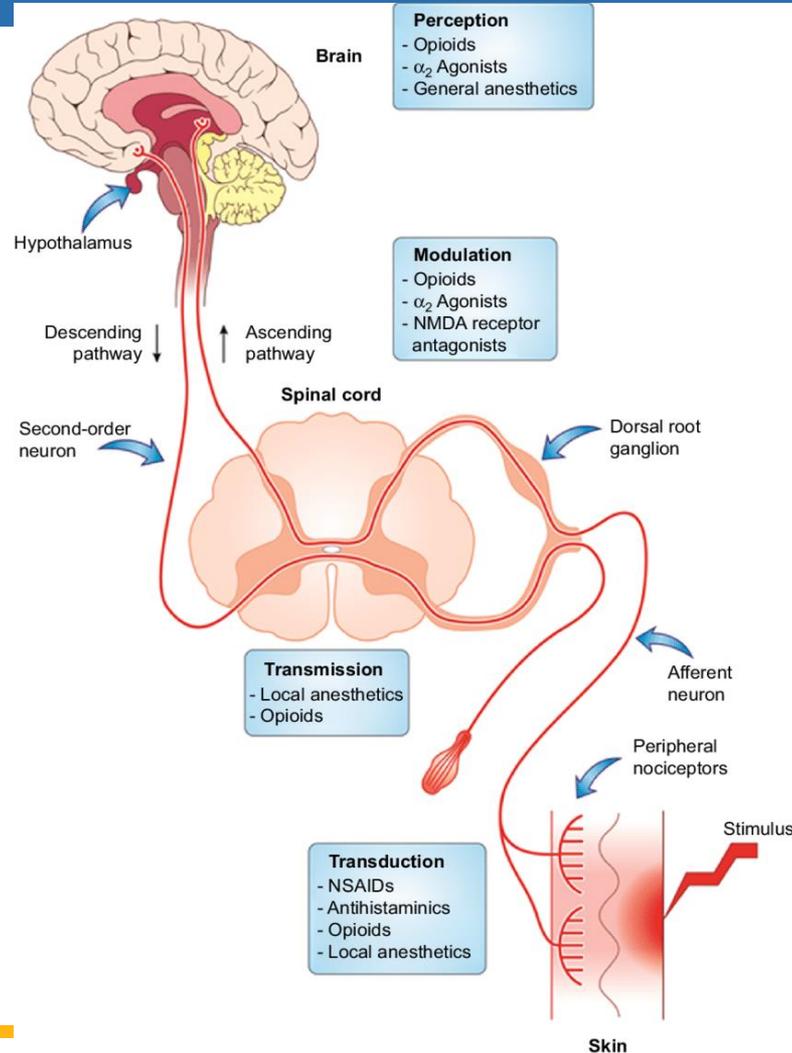
# Disclosures

- Consultant:  
Genentech

# Objectives

- Provide an overview of:
  - Neuropathy in Vasculitis
  - Evaluation and Diagnosis
  - Treatment
  - Recovery

# Pain and the brain



# Different “types” of pain

- **Nocioceptive**

- From inflammation or trauma
- Localized to area of injury

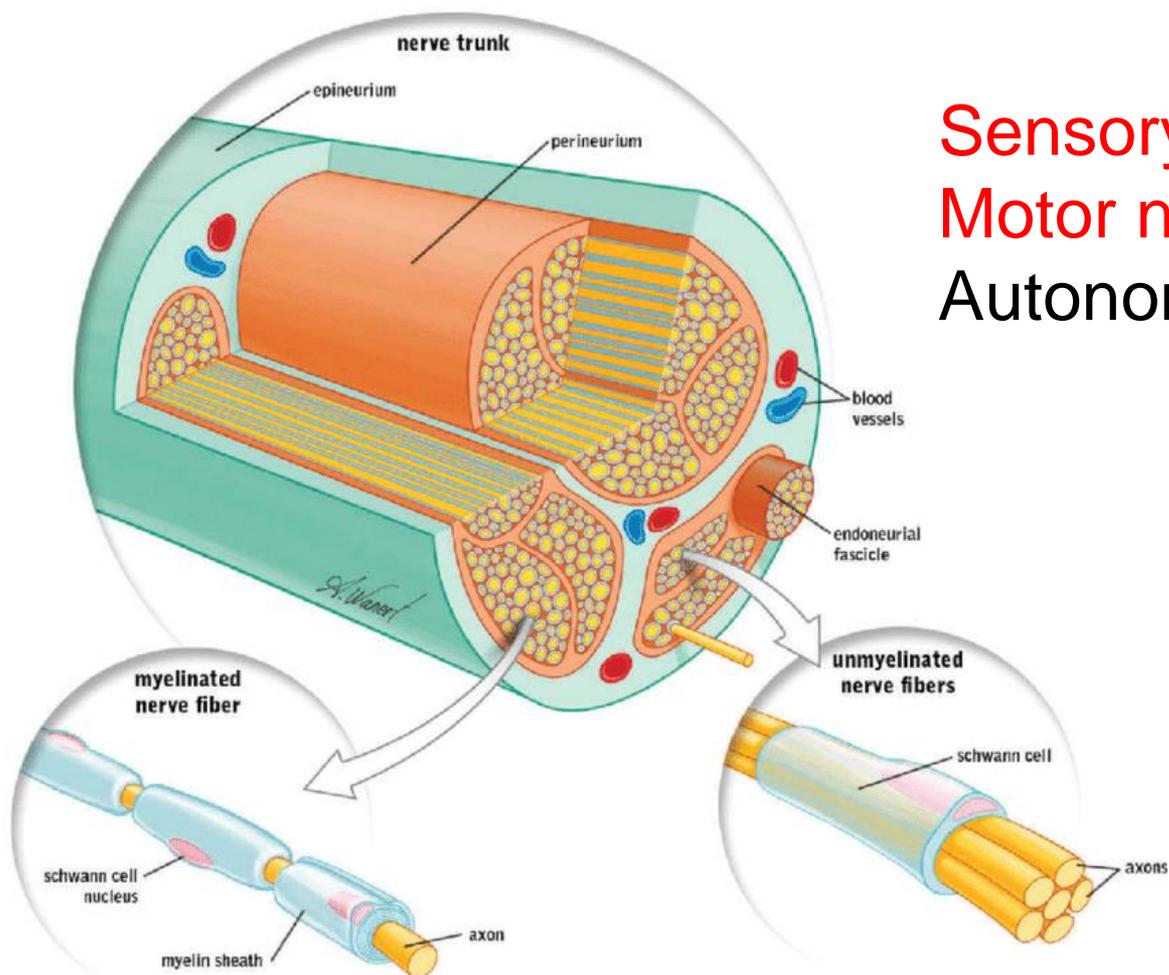
- **Neuropathic**

- Nerve damage/entrapment
- Distribution of the nerve

- **Centralized**

- From the central nervous system or systemic problem
- Widespread

# The peripheral nerve

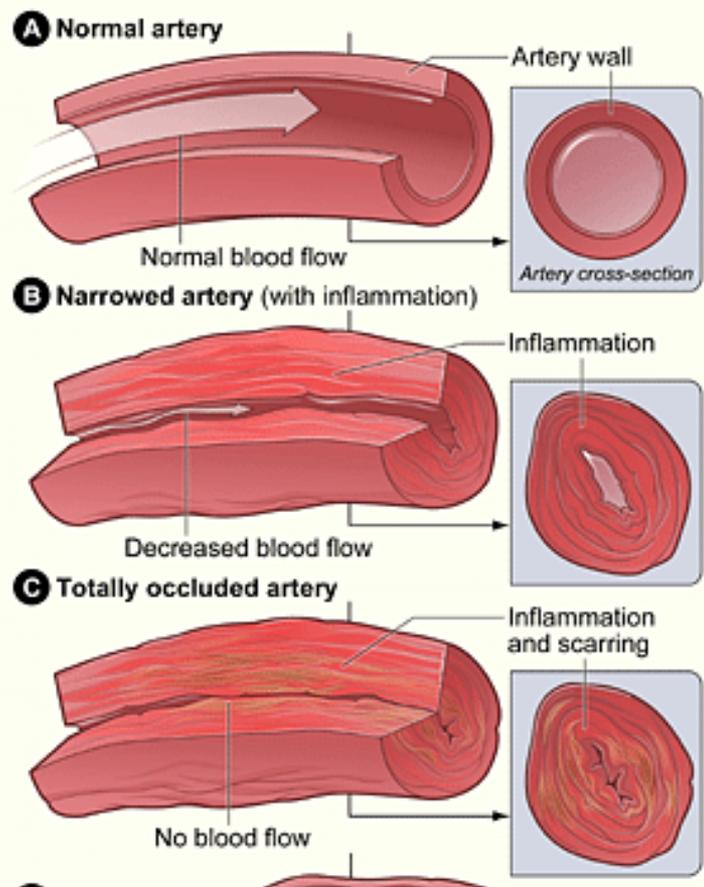


Sensory nerves  
Motor nerves  
Autonomic nerves

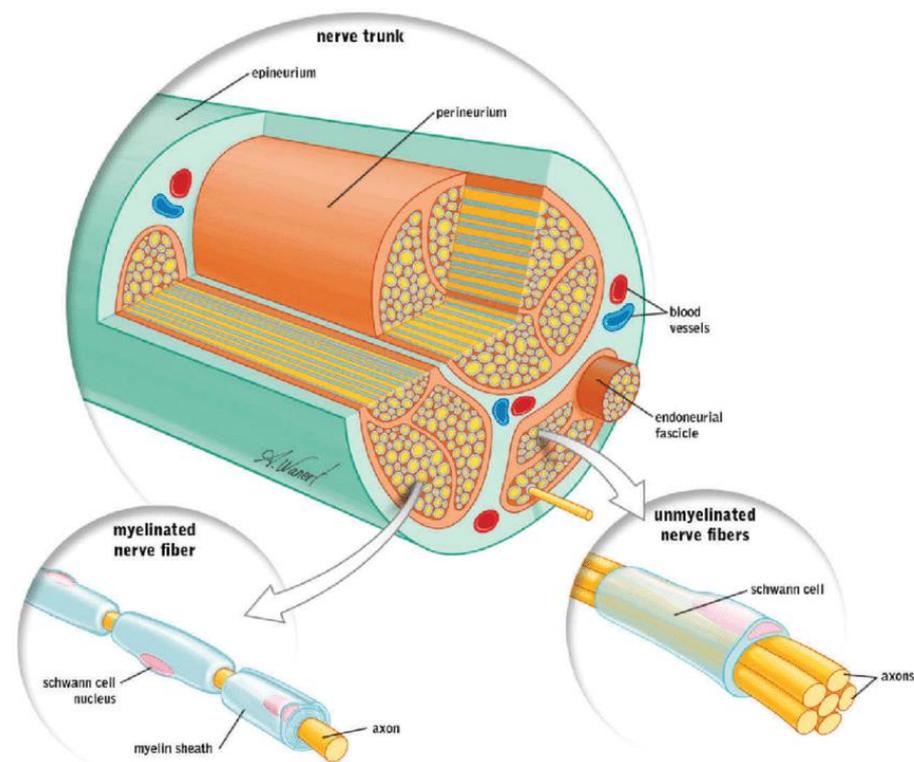
# Neuropathy

- Damage to the nerves
- Many different causes
  - Metabolic diseases like diabetes
  - Medications
  - Vitamin deficiencies
  - Trauma/pressure on the nerve
  - Alcohol abuse
  - Bone marrow disorders
  - Infections
  - Autoimmune diseases like vasculitis

# Vasculitis and the nerve

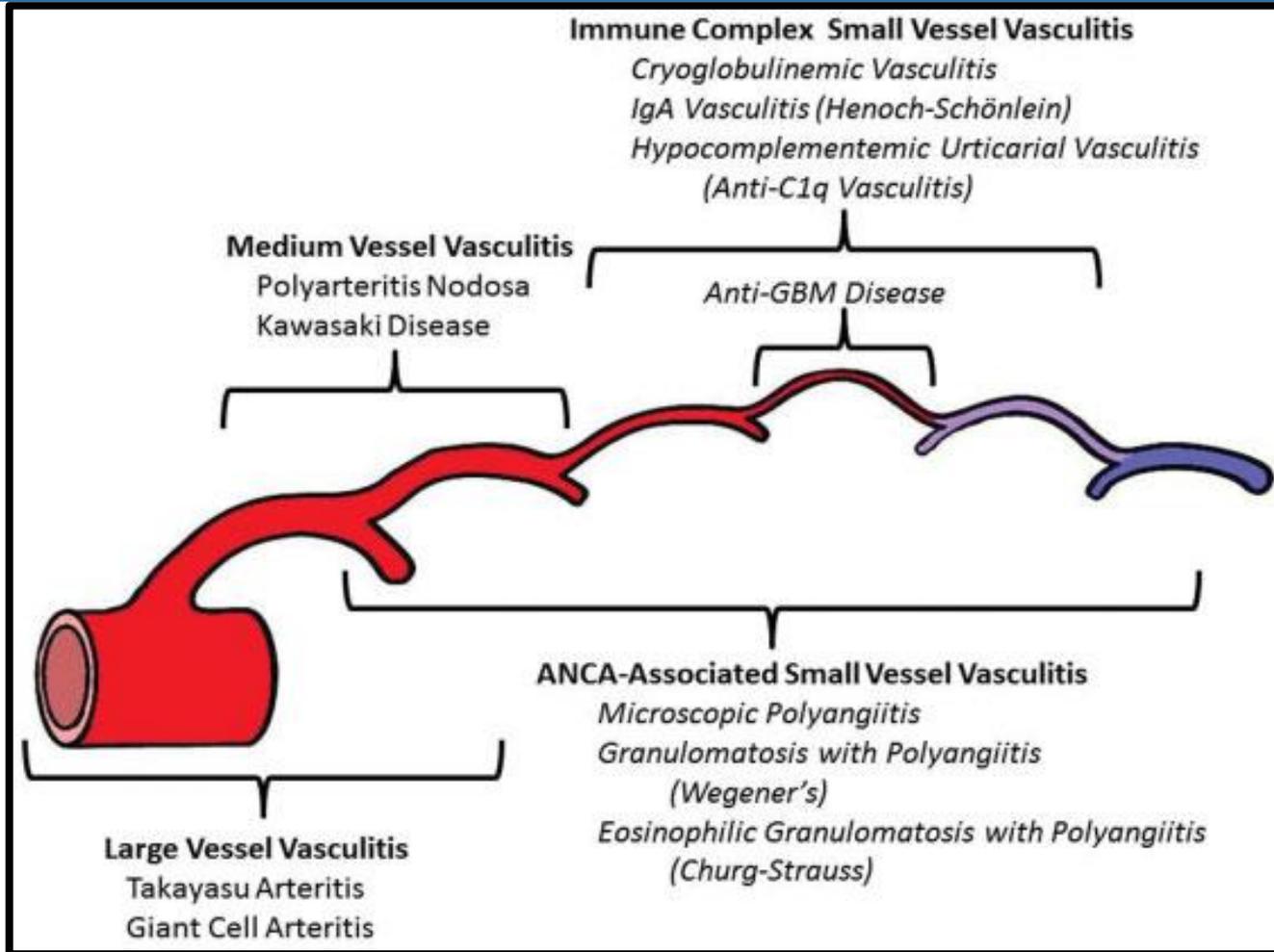


- Decreased or absent blood flow = “stroke” of the nerve



<http://www.nhlbi.nih.gov/health/health-topics/topics/vas/>

# Vasculitis - Classification



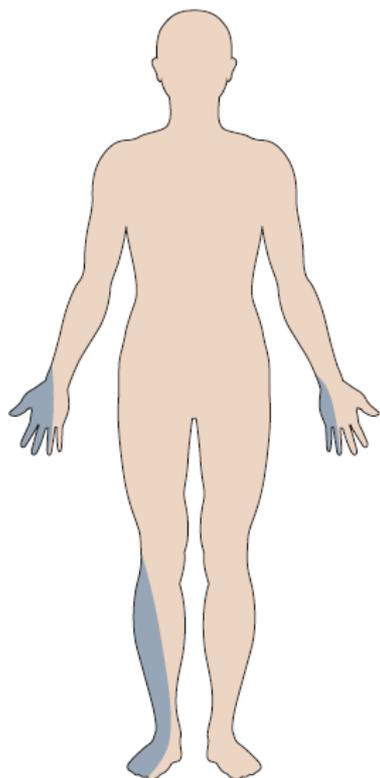
# Vasculitis and the nerve

- Systemic forms of vasculitis
  - ANCA vasculitis (EGPA>MPA>GPA): 20-65%
  - Polyarteritis nodosa: 65-70%
  - Cryoglobulinemic vasculitis: 65%
  - Urticarial vasculitis
  - Rheumatoid vasculitis
  - Sjogren's and connective tissue diseases
- Non-systemic vasculitic neuropathy
  - Form of "Single organ" vasculitis

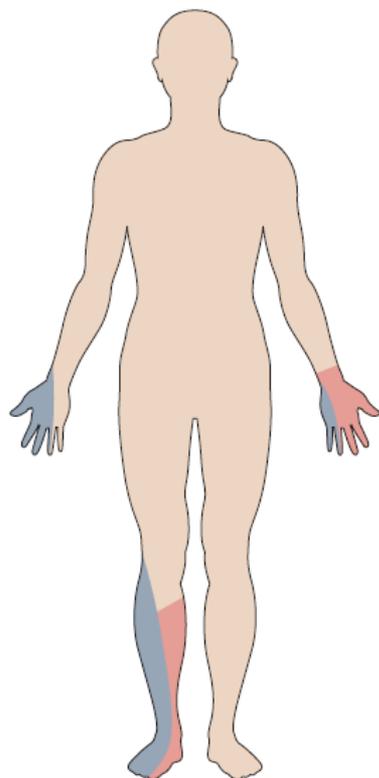
# Symptoms of nerve involvement

- Abrupt onset
- Can be rapidly progressive
- Depends on nerves that are affected (sensory, motor, sensorimotor)
- Sharp, shooting, burning pain
- Numbness, tingling
- Weakness
- Distal (involvement hands/feet)

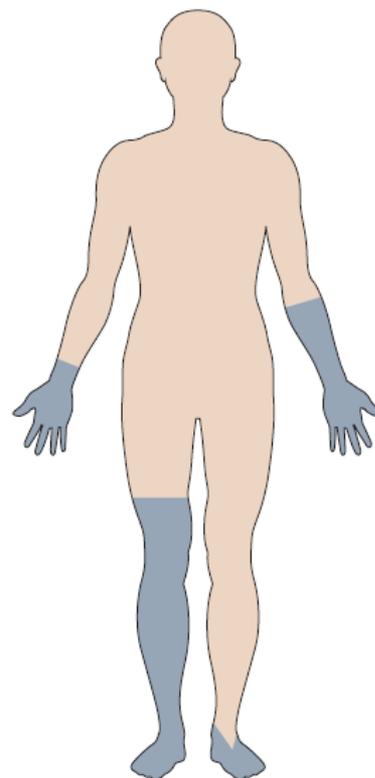
# Vasculitic neuropathy



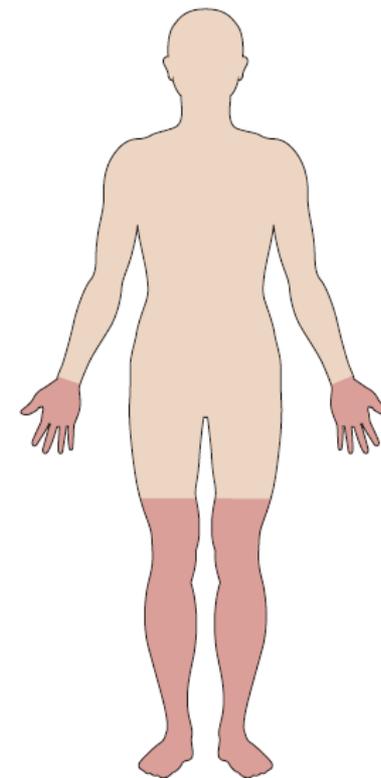
Multifocal neuropathy



Early overlapping multifocal neuropathy



Late overlapping multifocal neuropathy (asymmetric polyneuropathy)



Distal symmetric polyneuropathy

# Diagnosis

- Neurologic evaluation
- Laboratory evaluation
- Imaging (if suspect disc disease)
- EMG
- Biopsy

# Laboratory testing

- **General testing:**
  - Blood counts, liver/kidney panel, glucose, urinalysis with protein-creatinine ratio, markers of inflammation
- **Infections:**
  - Hepatitis B, Hepatitis C, HIV
- **Autoimmune tests:**
  - C3, C4, CH50, rheumatoid factor, cryoglobulins
  - ANCA tests – p-ANCA, c-ANCA, MPO, PR3
  - Tests for lupus/rheumatoid arthritis if indicated

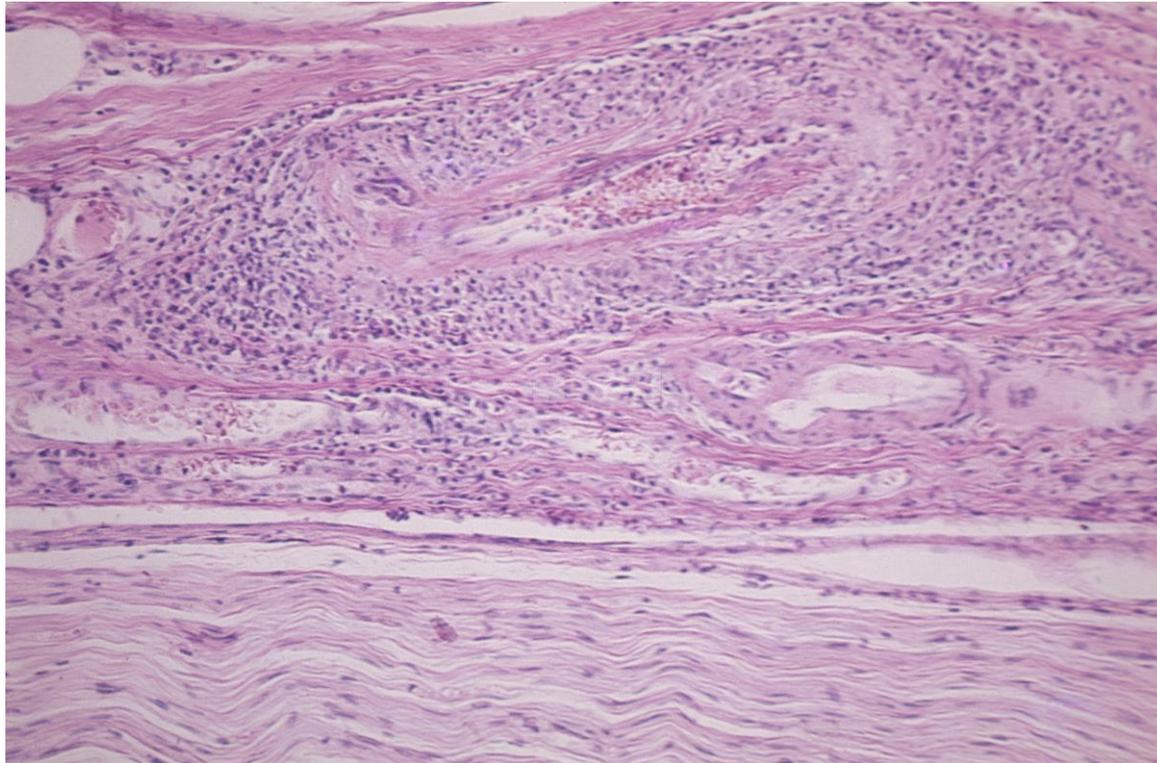
# Electromyography: EMG

- Evaluates muscles and nerves
- Measure electrical signals
- Useful to evaluate:
  - What is involved (nerve/muscle/both)
  - Extent of involvement
  - “level” where nerve is involved (peripheral, spinal cord, etc)
- Can follow over time as well

# Biopsy

- Not needed in all cases
- Needed for the “non-systemic” form
- Usually from the lower extremity
- Sensory nerve
- Adding muscle biopsy may increase yield by up to 25%
- Side-effects:
  - Pain
  - Open wound – infection risk, poor healing

# Biopsy



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# Treatment

- **Goal is to stabilize and prevent more damage**
- Immunosuppression
  - Depends on form of vasculitis
- Underlying cause
  - For vasculitis from infection (eg hepatitis C), treat infection
- Pain Management
- Physical and Occupational therapy
- Braces/fall prevention

# Treatment: immunosuppressive

- High dose steroids
  - IV
  - Oral
- “Chemotherapy”
  - Cyclophosphamide
  - Rituximab
- Plasma exchange
- IVIG
- Other immune suppressing medications

# Treatment Pain

- Acute
  - Tramadol
  - Lidoderm, topicals
  - Opioid
- Long-term management
  - Nerve level
    - Gabapentin
    - Lyrica
  - Central
    - Duloxetine
    - Tricyclic
    - SSRI

# Other Treatments?

- Most data from diabetes
- For pain management
  - Alpha Lipoic acid
  - Low level laser therapy
  - Low dose naltrexone
- CBD?
- Don't forget to address mood and sleep!

# Prognosis

- Improvement but not resolution
- Damaged axons are very slow to heal
  - Improvement usually over months to a year or longer
- Important to control the inflammation
- Physical/Occupational therapy

# Summary

- Nerve involvement is common in many forms of medium and small vessel vasculitis
- Isolated nerve vasculitis may also occur
- Biopsy can be helpful in diagnosis
- Treatment is multimodal and includes
  - Management of vasculitis
  - Management of pain
  - Physical/occupational therapy

Thank you!  
Discussion