American Kidney Fund®

SATELLITE HEALTHCARE
DIALYSIS · WELLBOUND · RESEARCH

Pain Management in Patients with Chronic Kidney Disease

Randy Chen, M.D.

Thanks to our speaker!

Randy Chen, M.D.

- Practicing nephrologist
- Serves as medical director for Satellite Healthcare Daly City
- Medical advisor for Satellite Healthcare, Inc. in the medical clinical affairs division

American Kidney Fund®

Pain Is a Big Problem!

- Pain affects more than 100 million people in the U.S.
- Pain-related costs are over $100 billion dollars in the U.S.
- Pain-related expenditures are more than those for diabetes, heart disease, and cancer COMBINED.
- The opioid epidemic has taken thousands of lives (130 lives daily), and causes an economic burden of over $78 billion dollars a year.
- Understanding and effectively treating pain is difficult.

American Kidney Fund®

What Causes Pain?

- Nerve fibers, chemicals, and the brain are all involved in this process.
- Pain receptors get activated by different stimuli.
- Nerves are like cables that send the signal to the brain.
- The brain will interpret this signal as pain.

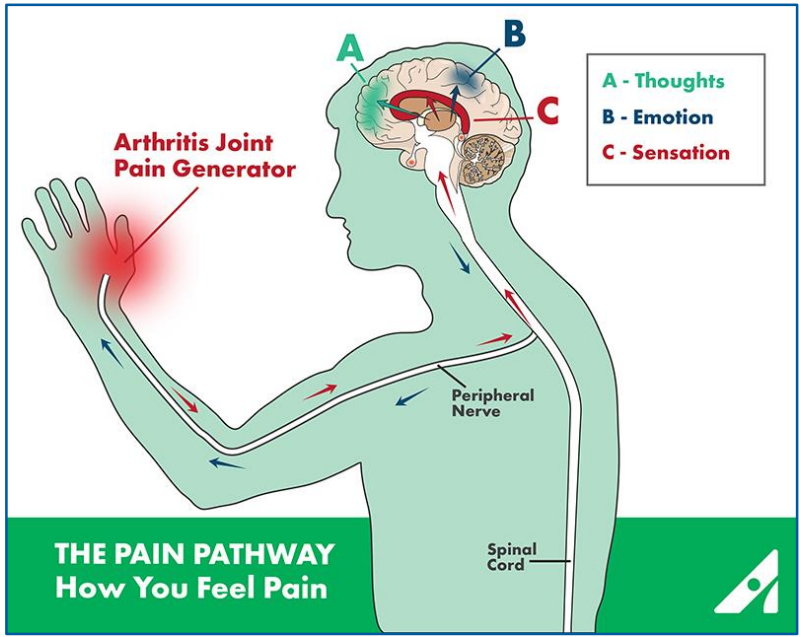


Image source: Arthritis Foundation

American Kidney Fund®

Why Do We Have Pain?

- It is our bodies way of telling us something is not right and that we should be aware of this.
- If we are injuring our bodies, we should know this. If I touch a hot stove, my brain tells me, “you better move your hand or it will burn.”
- If our organs are not doing well, there is a problem and sensing pain is an important signal. A heart attack will cause you pain in the chest.

American Kidney Fund®

Why Do We Have Pain? Why is Pain More Common in People with Kidney Disease?

- Pain is more common in CKD patients than in the general population. Over 60% of hemodialysis patients describe moderate or severe chronic pain (Davison, 2019)
- Half of dialysis patients experience moderate or severe pain (Santoro et al., 2012) and (Raina et al., 2018)
- Dialysis can cause inflammation with the process of cleaning blood and worsen overall pain in the body.

American Kidney Fund®

Common Sources of Pain in Kidney Disease and in Dialysis Patients

- Neuropathy
- Gout
- Needle insertion into dialysis access
- Metabolic bone disease
- Inflammation caused by the process of dialysis

American Kidney Fund®

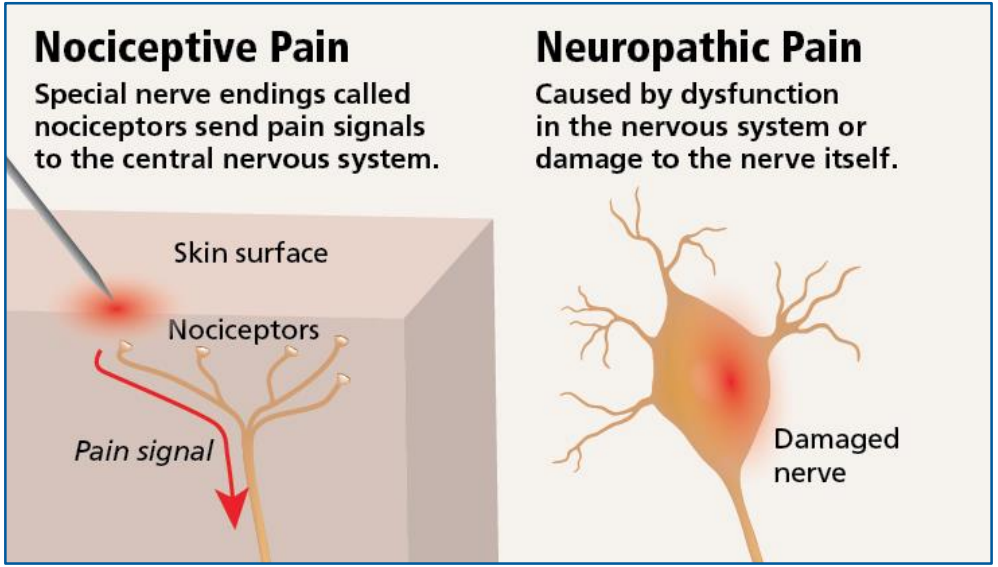
When Pain is Hurtful?

- It always hurts. It is our bodies telling us that something is wrong.
- Sometimes our emotions will make this worse and we will interpret the pain as severe.
- When it starts to affect life and ability to do things, it can be devastating.
- We have ways to make the pain more bearable.

American Kidney Fund®

Types of Pain

- **Nocioceptive** (mechanical) pain: Described as throbbing, pressure, dull, or cramping.
- **Neuropathic** (nerve) pain: Described as tingling, numbness, burning, or stabbing.
- Getting a better idea of the quality of pain is important for making a diagnosis and treatment plan.



American Kidney Fund®

Examples of Types of Pain in Kidney Disease

- Musculoskeletal pain: Pain in the muscles, bones and joints
  - Example: osteoarthritis
- Inflammatory pain: Increased sensitivity caused by inflammation
  - Example: infection, gout
- Mechanical pain: Pain from masses or compression
  - Example: kidney stone
- Neuropathic pain: Nerve pain
  - Example: sciatica, shingles, diabetic neuropathy (burning feet)

American Kidney Fund®

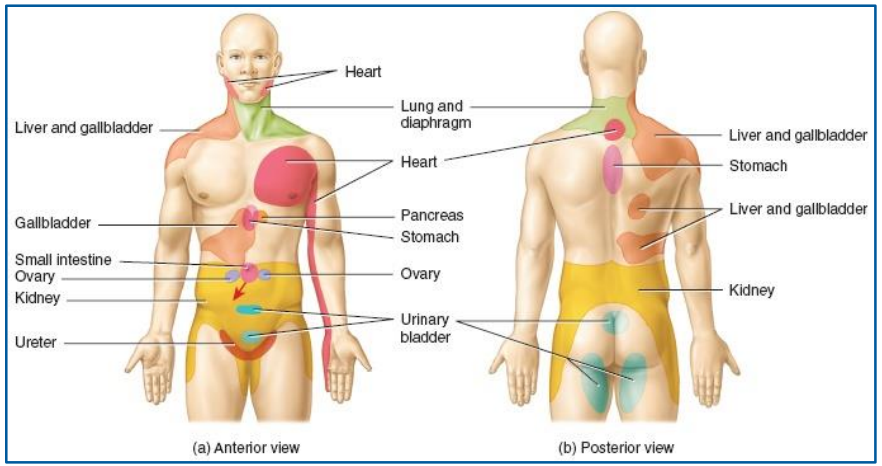
Visceral Pain

- Every organ in the body has pain receptors.
- The intestines, heart, lungs, and kidneys can all sense pain.
- Your skin is an organ and has a significant amount of pain receptors.
- You feel pain when mechanical causes, inflammation, or injury affect an organ.
- This is a way to tell that something is not right internally.

American Kidney Fund®

Referred Pain

- Organ pain can be sensed in parts of the body you may not expect.
- This pain seems like it may be coming from somewhere else.



American Kidney Fund®

Acute Versus Chronic Pain

Image source: Military Health System

- Acute pain: Sudden onset and usually caused by some process that triggers it then goes away. Tells the body to react and avoid injury.
  - Example: touching a hot stove or stepping on a nail.
- Chronic pain: Usually a result of constant nerve stimulation with injury or inflammation of the nerve.
  - Example: Diabetic neuropathy and chronic lower back pain. Longstanding mechanical pain such as arthritis.

American Kidney Fund®

When a Care Provider Asks Questions About the Type of Pain You Are Having…

- They are trying to get to the root cause of your pain and what is causing your pain by getting a good history.
- They can examine you to see if you have inflammation or something specific causing your pain or if it is from nerve injury.
- This can lead to further examinations or testing if necessary such as blood tests or X-rays.
- They can figure out what would be good treatments, e.g. medications, local therapy (heat or ice).

American Kidney Fund®

Medications for Mechanical (Nocioceptive) Pain

- Non-anti-inflammatory: acetaminophen, opioids (narcotics)
- Anti-inflammatory: NSAID's (ibuprofen, meloxicam), COX-2 inhibitors (celecoxib), steroids (prednisone)
- Topical agents: lidocaine, capsaicin cream, topical NSAID's (diclofenac gel)

AKF does not endorse any particular brand, inclusion of any brand is for reference example.

American Kidney Fund®

Caution with NSAID and COX-2 Inhibitors

- **N**on-**s**teroidal **a**nti-**i**nflammatory **d**rugs or NSAID's can cause kidney injury if used heavily or long-term, it is recommended that patients with kidney disease avoid using NSAID's.
  - Ibuprofen: MOTRIN®, Advil®
  - Naproxen sodium: Aleve®, Naproxen (Naprosyn)
  - Celecoxib: Celebrex®
  - Other NSAID's: meloxicam (Mobic®), diclofenac (Voltaren®), indomethacin (Indocin®)

- Sometimes, the kidney injury is temporary and sometimes it's permanent. But the risk is high for injury in patients with kidney disease.

AKF does not endorse any particular brand, inclusion of any brand is for reference example.

American Kidney Fund®

Medications for Nerve (Neuropathic) Pain

- Gabapentin (Neurontin®)
- Tricyclic Antidepressants
  - Example: amitriptyline (Elavil®)
- Anti-depressants
  - Example: duloxetine (Cymbalta®)

AKF does not endorse any particular brand, inclusion of any brand is for reference example.

American Kidney Fund®

Why should you manage your pain?

- Overall better quality of life
- Being able to do physical activities you enjoy
- Improved mental health
- Improved sleep patterns
- Higher survival rate

American Kidney Fund®

Gabapentin

- Very commonly prescribed for nerve pain.
- Works in the brain and interferes with the signals that the brain interprets as pain. How it works is complicated and not completely known.
- It has been shown to be effective in such things as diabetic neuropathy and shingles pain.

American Kidney Fund®

Cannabis Products

- Cannabis or marijuana products have gained some popularity in pain management.
- There is ongoing research into the use of CBD oil as a treatment for pain.
- Good research studies have not yet been performed or verified in kidney disease patients.
- The lack of quality assurance and FDA regulation makes getting a quality product difficult.

American Kidney Fund®

Narcotics and Opioids

Image source: Britannica

- Can be very effective for pain control in acute and chronic pain.
- Addiction and abuse potential is a huge concern.
- Can accumulate and the physical side effects such as low blood pressure, constipation, depression of respiratory drive can be magnified.
- Narcotic analgesics can cause a person to feel high and this can be magnified in patients with kidney disease as the drug can accumulate.
- In general, it is safest to start at a low dose and gradually increase the dose and frequency to avoid unwanted effects.
- Some medications can be dialyzed and some cannot.

American Kidney Fund®

Narcotic Pain Medicine cont.

- Shorter acting medicine such as fentanyl may be a better idea than longer-acting medicine since kidney disease patients can have issues with eliminating long-acting medicine from the body.
- Tramadol is a good consideration but not as effective as other narcotic analgesics for pain control.

American Kidney Fund®

Topical Analgesics

- Causes cooling or heating feelings and help to decrease the sensation of pain.
  - Example: BENGAY®
- Reduce substance P and decrease the pain transmission signal.
  - Example: Capsaicin
- Cause direct anesthetic effects and decrease nerve conduction.
  - Example: Lidocaine
- Anti-inflammatory effect to reduce the inflammation process.
  - Example: diclofenac gel, cream

AKF does not endorse any particular brand, inclusion of any brand is for reference example.

American Kidney Fund®

Hot and Cold RICE

- **R**est, **I**ce, **C**ompression, **E**levation or RICE can help musculoskeletal injury.
- When inflammation is the key process, **cold** is likely a better idea as it decreases circulation to that part of the body.
- When getting better circulation and helping to relax muscles is key, **heat** may help.
- Compression can help to decrease the tissue swelling.

American Kidney Fund®

Considerations for Pain for Patients with Kidney Disease

- Medications adjustments often need to be made because many medications are eliminated by the kidneys. So, they may last longer in the body or need a less potent dose.
- It is often best to start low and go slow when adjusting medications.
- NSAID's are generally not favored in patients with kidney disease as they have a high risk of kidney injury.
- Many medications have a ceiling effect and may not relieve the pain well enough.
- Many medications can be dialyzed and removed from the body and so the effect may wear off during dialysis

American Kidney Fund®

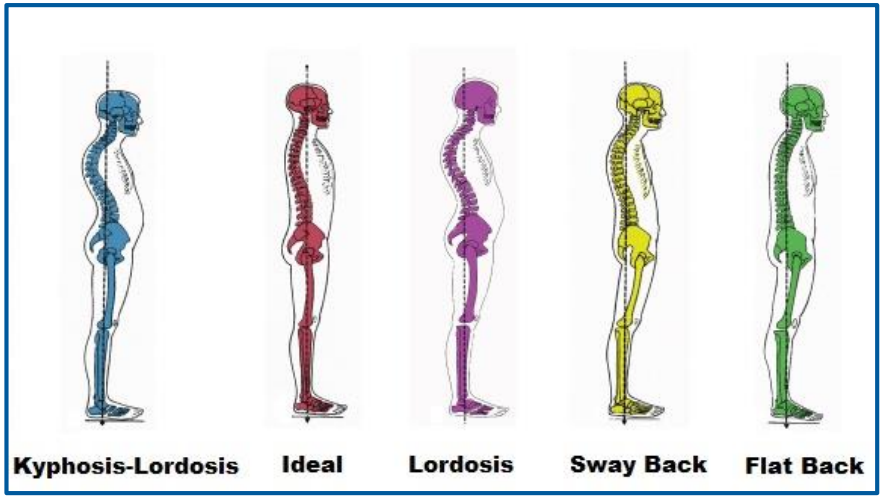
Pain with Needle Cannulation of Dialysis Access

- The needles used in dialysis cannulation of access are very large and can really hurt.
- Use of topical analgesics 30 minutes prior to needle insertion can numb the pain (lidocaine or EMLA® cream)
- Local injection of lidocaine or similar local anesthetics can numb the area where a needle is inserted.
- Over time, the area where the needle is inserted can become less sensitive to pain.

American Kidney Fund®

Reducing Somatic Pain with Ergonomics

- Neck and back pain is common. Cervical and lumbar support may help reduce pain and strain.
  - Neck pillows
  - Lumbar support or pillow
  - Good bed
- Stretching and exercise can help support the spine and body.
- Use ergonomic chairs and desks for prolonged sitting.
- Maintain good posture.



American Kidney Fund®

Procedures and Surgeries

- Epidural injections into the spine to deaden nerves
- Steroid injections into a joint space or area to decrease inflammation
- Botulinum toxin to decrease muscle tension
- Surgical decompression or others to decrease mechanical compression on a nerve
- Removing a mass or organ to decrease mechanical pain

American Kidney Fund®

Pain Specialists and Complementary Treatments

- If traditional treatments are not effective, it may be best to have a pain specialist who can help to manage pain syndromes.
- There may be other therapies such as acupuncture and electrotherapy that may be of help.

American Kidney Fund®

Pain Management Challenges

- The sensation of pain is a complex interplay of nerves, chemicals, and the brain.
- There are many types of pain and figuring out where it is coming from can be challenging.
- Pain control will likely take a number of different therapies and approaches. So don’t give up!

American Kidney Fund®

SATELLITE HEALTHCARE
DIALYSIS · WELLBOUND · RESEARCH

Questions?

American Kidney Fund®

SATELLITE HEALTHCARE
DIALYSIS · WELLBOUND · RESEARCH

Join us for our next webinar!

Estudios clínicos y enfermedad renal

Wednesday, October 9, 2019 from 1:00 – 2:00 p.m. EDT

Cariny Nuñez, MPH, CHRM, COR

hablará sobre los siguientes temas:

- Qué son los ensayos clínicos y cómo se protege a los participantes
- Por qué es tan importante la diversidad de participantes en los ensayos clínicos

Go to www.KidneyFund.org/webinars to learn more and register!

American Kidney Fund®

SATELLITE HEALTHCARE
DIALYSIS · WELLBOUND · RESEARCH

Join us for our next webinar!

Kathy Merritt, LCSW

Kidney Chat: Ask a Social Worker

Wednesday, October 23, 2019 from 2:00 – 3:00 p.m. EDT

Join us to hear more about:

- The role of a social worker
- Financial support when you have kidney disease
- Emotional support when you have kidney disease
- Other resources for people with kidney disease

Go to www.KidneyFund.org/webinars to learn more and register!