Rotation Title: Pain Management

I. Definition: Rotation in Pain Management CA-2 residents. Residents will receive training in the management of patients with acute, chronic or cancer pain. CA-3 residents may choose elective pain rotations in their senior year.

II. Curriculum: The goal is to provide a broad perspective of postoperative pain , cancer pain, and chronic pain management. The content outline for subsepcialty certification in pain management will serve as the basic syllabus to guide reading. Specific knowledge to be gained will include the principles of management of acute postoperative pain using various modalities including IV -patient controlled analgesia (PCA) devices, neuraxial analgesia, non-steroidal anti-inflammatory agents (NSAIDs) and transcutaneous electric nerve stimulation (TENS) units. Another goal is to provide a broad understanding of chronic pain problems. Knowledge to be gained will include the basics in evaluation and management of pain patients and an understanding of more common pain states, in particular neuropathic pain, autonomic-mediated pain, trauma/surgical pain, cancer pain, and painful medical diseases.

III. Performance Assessments:

A. Self Assessment
You (the resident) are to check off each criterion as the material is mastered. Self reflection on your own competencies is critical.

B. Faculty Assessment
Faculty will periodically review your self assessment and discuss their assessments of your competencies. The overall scores on the six competencies will be reported to you at least weekly.

C. Mentor Assessment
Your mentor should meet with you quarterly and review your entire portfolio. The mentor should report areas in which you have deficiencies (for your level of training). This report may be to you and/or to the program director as determined by your mentor.

IV. Competencies Assessed (Performance Criteria):

A. Patient Care: During the course of this rotation, the resident is expected to show increasing competency in each of the following …

1. History and physical examination (including neurological examination)
2. Management plan including differential diagnosis and treatment of patients with painful conditions
3. Diagnostic testing
4. Broad range of peripheral nerve blocks.
5. Basic sympathetic blocks.
6. Placing neuraxial catheters, perform regional techniques, and nerve blocks for postoperative pain control.
7. Recognizing and managing complications of neuraxial or IV administration of narcotics or local anesthetics.
8. Operating and programming pumps for various routes of drug administration.
9. Appropriate documentation of patient care.

B. Medical Knowledge: During the course of this rotation, the resident is expected to show increasing competency in knowledge in each of the following areas …

1. Neuroanatomy of the more common pain states
   a. Pain mechanisms including pathways, referred pain, dorsal horn effects, hyperalgesia, allodynia and psychogenic influences
   b. Neurotransmitter receptors involved in pain and analgesia
2. Indications of diagnostic testing.
3. Mechanisms of chronic pain.
4. Autonomic-mediated pain including complex regional pain syndromes I and II
5. Mechanical low back pain.
6. Myofascial pain syndrome.
7. Mechanisms of pain in diseases including AIDS, multiple sclerosis, Guillian-Barre, claudication, pancreatitis, herpes zoster and sickle cell anemia
8. Pathophysiology of acute pain.
9. Pharmacology of pain including narcotics, local anesthetics, nonsteroidal anti-inflammatory drugs, neurolytics, other neuraxial and systemic drugs
10. List the criteria of patient selection for each modality of acute pain management. Include discussion of pregnant, pediatric and geriatric patients.
11. Techniques of central block for pain control
12. Techniques of sympathetic blocks for diagnosis and pain relief
13. Peripheral nerve blocks and catheters for acute pain control
14. Non-pharmacologic pain treatments including cognitive-behavioral therapy, psychotherapy, hypnosis, biofeedback, etc.

The resident on their pain rotations shall be responsible for mastering all material listed in Appendix A. These will be assessed by written and oral examinations.

C. Practice-Based Learning and Improvement: During the course of this rotation, the resident is expected to show increasing competency in knowledge in each of the following areas …

1. Follow-up with patients to determine results of the pain management plan
2. Review pain management strategies in similar patients and learn the overall results of such strategies
3. Track case counts showing involvement in variety of cases so that comfort level extends to management of various pain syndromes
4. Attend and/or present at M&M and journal clubs.
5. Review the pain literature for new drugs and techniques
6. Look up and report to attending physicians the scientific evidence for the appropriate pain managmenet of both usual and unusual cases. This should be done at least weekly. A copy of these reports may be placed in your portfolio.

D. Interpersonal and Communication Skills: During the course of this rotation, the resident is expected to show increasing competency in knowledge in each of the following areas …

1. Correctly identify his/her role in the patient’s care
2. Obtain informed consent
3. Maintain outpatient charting requirements
4. Define the future patient plans effectively
5. Define pain severity and patient anxiety levels

E. Professionalism: During the course of this rotation, the resident is expected to show increasing competency in knowledge in each of the following areas …

1. Work smoothly in an outpatient clinic
2. Properly care for charting and confidentiality issues
3. Dress in a professional manner
4. Maintain a professional demeanor at all times, even when dealing with difficult patients

F. Systems-Based Practice: During the course of this rotation, the resident is expected to show increasing competency in knowledge in each of the following areas …

1. Understanding the impact of chronic pain on the health care system and society in general
2. Understanding worker’s compensation
3. The multidisciplinary nature of pain management
4. Resources for medical care of the under-insured and uninsured patient

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Appendix A: Medical Knowledge expected to be mastered during Pain Rotations

Lecture 2

Radiological Anatomy

1) Chest (Including CT and MRI); heart angiography, nuclear imaging techniques
2) Brain and Skull (including CT and MRI)
3) Spine (Cervical, Thoracic, Lumbar), Including CT and MRI
4) Neck (Including Doppler Ultrasound for Central Venous Access)

Lecture 21

Pharmacokinetics and Pharmacodynamics

1) Pharmacokinetics and Pharmacodynamics, Protein Binding; Partition Coefficients; pKa; Ionization; Tissue Uptake, Compartmentization and Exponential Modules
    a) pharmacokinetics of neuraxial drug administration: epidural and subarachnoid
    b) tolerance and tachyphylaxis

Lecture 23

Drug Interactions / Reactions and Alternative Medications

1) Drug Interactions: Enzyme Induction and Inhibition, Hepatic Blood Flow, Drug-Drug Binding
    a) alternative and herbal medicines: perioperative implications
2) Drug Reactions (Anaphylactoid, Anaphylaxis, Idiosyncratic)

Lecture 95

Pain Mechanism and Pathways

1) nociceptors and nociceptive afferent neurons, wind-up phenomenon
2) dorsal horn transmission and modulation
3) spinal and supraspinal neurotransmission and modulation; opioid receptors
4) autonomic contributions to pain; visceral pain perception and transmission
5) social, vocational and psychological influences on pain perception
6) gender and age differences in pain perception

Lecture 96

Autonomic Nervous System

1) sympathetic: receptors; transmitters, synthesis; storage; release; responses; termination of action
2) parasympathetic: receptors; transmitters; synthesis; release; responses; termination of action
3) ganglionic transmission
4) reflexes: afferent and efferent limbs

Lecture 98

Pharmacology of CNS Drugs

1) CNS Drugs for Non-Anesthetic Use (Major Actions, Comparison of Drugs; Effect on Respiration; Circulation, Adverse Effects)
    1) pre- and postanesthetic medications
        a) opioids
        b) opioid antagonists, agonist-antagonists
    2) alpha-2 agonists: clonidine, dexmedetomidine
    3) tranquilizers: butyrophenones; benzodiazepines
    4) anticonvulsants: phenytoin, carbamazepine, gabapentin, barbiturates, others
    5) antidepressants, anti-parkinson drugs
    6) arousal agents: physostigmine, benzodiazepine antagonists
    7) antiemetics and aspiration prophylaxis: phenothiazines; butyrophenones; metoclopramide; anticholinergics; serotonin antagonists, antihistamines (H_1-blockers, H_2-blockers, mixed blockers), antacids, proton pump inhibitors

Lecture 129

Pathophysiology and Treatment of Cancer Pain

1) Cancer-Related Pain, ASA Practice Guidelines
    a) systemic medications, tolerance and addiction
    b) continuous spinal and epidural analgesia
    c) neurolytic and non-neurolytic blocks

Lecture 130

Pathophysiology and Treatment of Non-Cancer Chronic Pain

1) Other Chronic Pain States, ASA Practice Guidelines
    a) acute and chronic neck and low back pain,
    b) neuropathic states

(1) complex regional pain syndrome, types I and II
(2) postherpetic neuralgia

1) systemic medications: nonsteroidal anti-inflammatory drugs (NSAIDs), opioid analgesics, anticonvulsants, antidepressants
2) spinal and epidural analgesia
3) peripheral nerve blocks
4) sympathetic nerve blocks
5) other techniques: TENS, spinal cord stimulation, neuroablation (surgical and chemical neurolysis)

Lecture 131

Pathophysiology and Treatment of Central Pain

1) Phantom Limb Pain, Post-Stroke Pain
2) myofascial pain
3) Other somatic pain conditions: arthropathy, etc.

Lecture 166

Practice Management

1) Medicare/Medicaid Requirements
2) Primary Certification
3) Recertification
4) Maintenance of Certification and Related Issues (Professional Standing, Lifelong Learning, Cognitive Knowledge, Clinical Practice Assessment, Systems-Based Practice)