THE pain SOURCE

Topical Compounded Creams For Pain

Drug and Dose Range	Proposed Mechanism of Action	Uses*
NMDA-Ca Channel Blocker		
Ketamine 5-10%	Blocks peripheral NMDA receptors to prevent pain transmission from periphery to the brain. This ultimately "turns off" the positive feedback pain loop involved in chronic pain. -**Ketamine**: highest affinity for NMDA receptor; also blocks peripheral 5-HT (serotonin) and opioid receptors and edema response to inflammation.	•Neuropathic Pain Standard •Chronic Pain - all types •Diabetic Peripheral Neuropathy •Allodynia and Hyperalgesia •Complex Regional Pain Syndrome •Post-op Neuropathic Pain •Lumbar Radiculopathy •Post-herpetic Neuralgia
Sodium and Glutamate Blockers		
Lidocaine 1-10%	Blocks Na channel in hyperexcited neurons to decrease synaptic efficiency of both NMDA and AMPA (glutamate) receptors in periphery. Especially useful in diminishing pain transmission in damaged neurons -**Gabapentin**: may also block glutamate at NMDA receptor	•Neuropathic and Inflammatory Pain
Gabapentin 5-10%		•Neuropathic Pain Standard
Tricyclic Antidepressants		
Amitriptyline 2-10%	NE and 5-HT reuptake blocker; binds opioid receptors; blocks histamine, peripheral alpha-adrenergic and muscarinic receptors; blocks NMDA receptors and Na channels; interacts with adenosine -**Amitriptyline**: has more potent local anesthetic effects than bupivacaine	•Neuropathic Pain •Diabetic Neuropathy •Post Herpetic Neuralgia •Chronic Inflammatory Pain •Fibromyalgia •Idiopathic Neuropathy •TMJ Pain
Imipramine 2-10%		
Cyclobenzaprine 2%	-**Imipramine** and **desipramine** more selective for NE - potential advantage -**Cyclobenzaprine**: structure similar to amitriptyline	•Same as above •Muscle Relaxant
GABA-B Agonist		
Baclofen 2%	Activates the GABA-B receptor which produces a neuron inhibitory effect	•Muscle Relaxant •Fibromyalgia Standard •TMJ Pain

Drug and Dose Range	Proposed Mechanism of Action	Uses*
Alpha-2 Agonist		
Clonidine 0.2%	Blocks NE release to prevent activation of peripheral adrenergic receptors (offers pain relief without loss of sensation seen with anesthetics)	•Neuropathic Pain Standard •Sympathetically Maintained •CRPS/Trigeminal Neuralgia •Phantom Limb Pain
Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)		
Ketoprofen 10%	Decreases pain receptor sensitivity by blocking production of prostaglandin 2	•Musculoskeletal Pain •Joint Pain •Osteoarthritis •Rheumatoid Arthritis •Soft Tissue Injury •Fibromyalgia •Post-Herpetic Neuralgia •Complex Regional Pain Syndrome •Foot Pain •Sports Injury •Tennis Elbow
Diclofenac 2-10%		
Ketorolac 0.5%		•Same as above •Particularly used for Acute Pain
Calcium Channel Blocker		
Nifedipine 2-16%	Increase blood flow to affected area	•Diabetic Neuropathy •Increase Circulation
Verapamil 6%		•Fibrosis/Scarring

* The conditions listed in the “uses” column are NOT FDA-approved, but rather clinical observations