<table>
<thead>
<tr>
<th>Drug and Dose Range</th>
<th>Proposed Mechanism of Action</th>
<th>Uses*</th>
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<tbody>
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<td><strong>NMDA-Ca Channel Blocker</strong></td>
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| 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. | • Neuropathic Pain Standard  
• Chronic Pain - all types  
• Diabetic Peripheral Neuropathy  
• Alldynia 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. | • Neuropathic and Inflammatory Pain |
| Gabapentin 5-10%    | Especially useful in diminishing pain transmission in damaged neurons  
- **Gabapentin**: may also block glutamate at NMDA receptor | • 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 | • Neuropathic Pain  
• Diabetic Neuropathy  
• Post Herpetic Neuralgia  
• Chronic Inflammatory Pain  
• Fibromyalgia  
• Idiopathic Neuropathy  
• TMJ Pain |
| Imipramine 2-10%    |  
- **Amitriptyline**: has more potent local anesthetic effects than bupivacaine  
- **Imipramine** and desipramine more selective for NE - potential advantage  
- **Cyclobenzaprine**: structure similar to amitriptyline | • Same as above  
• Muscle Relaxant |
| Cyclobenzaprine 2%  | Activates the GABA-B receptor which produces a neuron inhibitory effect | • Muscle Relaxant  
• Fibromyalgia Standard  
• TMJ Pain |
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| 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 |

**Alpha-2 Agonist**

**Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)**

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| 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%  |                              | •Same as above  
•Particularly used for Acute Pain |
| Ketorolac 0.5%    |                              |                                |

**Calcium Channel Blocker**

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| 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