Drugs Used in Transdermal Pain Management

Drug	Strength	Use / Venosan	Mechanism	Notes
Amitriptyline	**1%-5%**	• Chronic/neuropathic pain • Shingles • Diabetic peripheral neuropathy • Plantar fasciitis	• Sympatholytic/NE reuptake inhibitor	• Has a synergistic effect with ketamine
Baclofen	**2%**	• Muscle relaxant/anti-spastic • Normalizes muscle excitability, decrease pain, and improve motor function • Improves muscle contraction and joint range of motion resulting in improved mobility and functioning	• Direct GABAβ agonist • The precise mechanism of action of baclofen is not fully known	• Works well as an add on in fibromyalgia
Clonidine	**0.1%-0.3%**	• Chronic/neuropathic pain	• Alpha2 adrenoreceptor agonist (reduces sympathetic outflow)	• Anti-hypertensive effects start showing at strengths above 0.4% • Listed as Exception in WADA 2017 Prohibited List (Section S6: b-Specified Stimulants)
Cyclobenzaprine	**1%-4%**	• Skeletal muscle relaxant/anti-spastic	• Like other tricyclic antidepressants, cyclobenzaprine potentiates of norepinephrine	• 2nd line therapy • May cause drowsiness
Diclofenac	**2%-10%**	• NSAID, analgesic	• Non-selective COX inhibitor	• **Causes more pruritis than ketoprofen**
Diphenhydramine	**2%-10%**	• Neuropathic pain • Plantar fasciitis	• Voltage regulated Na+ & Ca++ blockade	
Gabapentin	**6%-12%**	• Chronic/neuropathic pain • Helpful in burning, stabbing pains, feelings of electric shock	• Voltage regulated Na+ & Ca++ blockade • AMPA-Na+ channel blockers • Glutamate antagonist	• Could use topical to wean patient off oral • Great for trigger points
Guaifenesin	**5%-10%**	• Skeletal muscle relaxant • Analgesic • Fibromyalia	• Mechanism is not fully understood • It is believed to work by depressing transmission of nerve impulses in the central nervous system (CNS)	• 1st line for trigger point pain gels (10%) • Up to 600 mg TID orally for fibromyalgia

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Ketamine	**5-15%**	• General anesthetic • Neuropathic pain of various origins, including post- herpetic neuralgia, complex regional pain syndrome, cancer pain, orofacial pain, and phantom limb pain • Effective in treating painful neuropathy when other traditional methods have failed • Post-operative pain and other post-traumatic pain • Control of pain during dressing changes	• NMDA-Ca++ channel blocker • Blocks a cascade of intracellular events that inhibit the hyper excitability of spinal cord neurons	• Has the highest affinity for NMDA receptors • Not listed in WADA 2017 Prohibited List (Section S7: Narcotics)
Ketoprofen	**5%-20%**	• NSAID, analgesic, neuropathic pain	• Propionic acid NSAID	• **1st line for joint pain** • **Has affinity for synovial fluid**
Lidocaine	**2%-10%**	• Local anesthetic • Used to treat acute and chronic pain, shingles Pain	• Blocks initiation and conduction of nerve impulses by blocking the Na+ channels • AMPA-Na channel blocker anesthetic blocks initiation and conduction of nerve impulses by blocking the Na+ channels	• 2nd line for trigger point pain gels – add on (2%)
Magnesium Chloride	**10%-20%**	• Muscle relaxant • Inflammatory pain • Fibromyalgia	• NMDA-Ca++ channel blocker • Works through Na/K ATPase to reduce pain and inflammation while propagating regeneration of tissues and increasing flexibility	• 1st line for trigger point pain gels (10%) • 10% in Lipoderm® – 6x/day for fibromyalgia patients (on dermatomes/trigger points)
Piroxicam	**1%-5%**	• NSAID, analgesic, anti-inflammatory • Well established in treating rheumatoid arthritis and osteoarthritis and used for musculoskeletal disorders	• Oxicam type NSAID	• Excellent with plantar fasciitis