



CYCLOBENZAPRINE (Brand Name: Flexeril®, Amrix®)

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Introduction:

Cyclobenzaprine is a central nervous system (CNS) muscle relaxant intended for short-term use in the treatment of pain, tenderness and limitation of motion caused by muscle spasms. Cyclobenzaprine may enhance the effects of other CNS depressants including alcohol, barbiturates, benzodiazepines and narcotics and anecdotal reports indicate it is used non-medically to induce euphoria and relaxation.

Licit Uses:

Cyclobenzaprine hydrochloride is approved for use in the United States as a muscle relaxant. It is marketed under the brand names Flexeril® and Amrix® and as generic formulations in 5, 7.5, and 10 mg tablets intended for short-term (2 to 3 week) oral administration. The usual starting dose is 5 mg, three times per day. The maximum recommended dose is 10 mg, three times daily. IQVIA™ reports 28.4 million total prescriptions of cyclobenzaprine dispensed in the U.S. in 2017; with 26.9 million prescriptions actually being sold or picked-up by patients and 26.7 million prescriptions being sold/picked-up for 2018 and 2019.

Chemistry and Pharmacology:

Cyclobenzaprine hydrochloride is a white crystalline tricyclic amine salt that is freely soluble in water or alcohol. Cyclobenzaprine has been shown to reduce or abolish skeletal muscle hyperactivity. It is thought to act within the CNS at the brain rather than the spinal cord, although action at the spinal cord may contribute to some of its skeletal muscle relaxant action. Pharmacological studies in animals have shown a similarity between the effects of the structurally-related tricyclic antidepressants and cyclobenzaprine. The most frequently encountered adverse effects of cyclobenzaprine include the anticholinergic effects, such as, drowsiness, dry mouth and dizziness. Other CNS effects include blurred vision, confusion, anxiety, agitation, psychosis, abnormal thinking, and hallucinations. Cardiovascular effects include increased heart rate and palpitations. The induction of these effects is dose-dependent. Nausea, headache and malaise may be experienced upon abrupt termination of prolonged use.

Illicit Uses:

Anecdotal reports found on the Internet suggest that individuals are taking cyclobenzaprine alone or in combination with other illicit drugs to produce or enhance psychoactive effects. Individuals have reported taking cyclobenzaprine both orally and intra-nasally at doses ranging from 10 mg to 60 mg. Sedation, relaxation and increased heart rate were the most common effects reported. Euphoria was reported by a smaller number of individuals.

Illicit Distribution:

Several indicators suggest that cyclobenzaprine is being intentionally misused or abused. According to the American Association of Poison Control Centers, 10,615 case mentions and 4,444 single exposures were associated with cyclobenzaprine in 2016, resulting in 75 major medical outcomes and four deaths among single substance exposures. In 2017, there were 10,429 case mentions, 4,248 single exposures, 97 major medical outcomes, and one death.

For emergency department (ED) visits, there were an estimated 12,411 emergency room visits associated with cyclobenzaprine in 2010, a statistically significant increase of 101% from 6,183 visits in 2004 from the Drug Abuse Warning Network Emergency Department visits, DAWN ED; that ceased data collection in 2011.

According to the National Forensic Laboratory Information System (NFLIS), there were 1,142 cyclobenzaprine reports from federal, state and local forensic laboratories in 2016 and 995 reports in 2017. For 2018 and 2019, preliminary reporting indicates an estimated 883 and 527 reports of cyclobenzaprine identified, respectively.

Control Status:

Cyclobenzaprine is not currently controlled under the Controlled Substances Act.

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section; Fax 571-362-4250, Telephone 571-362-3249, or Email DPE@usdoj.gov.