



HYDROMORPHONE

(Trade name: Dilaudid®; Street Names: Dust, Juice, Smack, D, Footballs)

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Introduction:

Hydromorphone is a potent schedule II opioid analgesic drug. Hydromorphone abuse has been a continuing problem in the United States. It is marketed as injectable ampules, multiple dose vials, tablets and suppositories. Hydromorphone is indicated for relief of moderate-to-severe pain. Hydromorphone is marketed under brand names, Dilaudid® and Exalgo®. It is also marketed in generic forms.

Licit Uses:

The total dispensed prescriptions of hydromorphone in the U.S. remained fairly stable for 2012 to 2015, slightly decreasing within the range of 3.8 million, according to IQVIA™ (formerly known as IMS Health™). For 2016, there were 3.5 million prescriptions dispensed within the U.S., and 3.1 million prescriptions sold to patients in 2017. In 2018, in response to the U.S. opioid crisis, the total number of prescriptions sold to patients decreased further to 2.7 million.

Currently approved hydromorphone products include tablets of 2, 4, and 8 mg, extended release tablets of 8, 12, 16, 32 mg, oral solution of 5 mg/5 ml viscous liquid, and ampules of 1, 2, 4, and 10 mg/ml sterile solution for parenteral administration.

Chemistry/Pharmacology:

Hydromorphone, [4,5-epoxy-3-hydroxy-17-methylmorphinan-6-one] is a semi-synthetic opioid agonist derived from morphine. It will be positively identified as an opiate in the field test kits. Pharmacological and toxic effects, clinical indications and contraindications, abuse and dependence liabilities of hydromorphone are essentially similar to those of other schedule II opioid analgesics such as morphine, oxycodone, etc. In humans, the doses of 1.3 and 7.5 mg hydromorphone produces analgesia equivalent to that produced by 10 and 30 mg morphine when taken by the intramuscular and oral routes, respectively. The analgesic action of hydromorphone is perceived within 15 and 30 minutes following its administration through injection and oral routes, respectively. The analgesic action usually lasts for more than 5 hours. Similar to other opioids, hydromorphone produces euphoria, feelings of relaxation, reduced anxiety, respiratory depression, sedation, constipation, papillary constriction, and cough suppression. Acute overdose of hydromorphone can produce severe respiratory depression, somnolence progressing to stupor or coma, skeletal muscle flaccidity, cold and clammy skin, constricted pupils, reduction in blood pressure and heart rate, and death. Pure opioid antagonists such as naloxone are specific antidotes against respiratory depression from hydromorphone overdose.

Illicit Uses:

Hydromorphone, similar to other schedule II opioids, has a high abuse and dependence potential and produces tolerance. Prior to the current popularity of hydrocodone and oxycodone among drug abusers, low dose (2 and 4 mg) immediate release hydromorphone formulations (i.e., Dilaudid®) were the leading opioid products for abuse and diversion. Street names for Dilaudid® are Dust, Juice, Dillies, Smack, D and Footballs. Abuse of hydromorphone is mainly among rural and suburban populations.

Illicit Distribution:

The main sources of hydromorphone diversion include forged prescriptions, "doctor-shoppers," pharmacists and physicians, armed robberies, robberies of pharmacies and nursing homes. The diversion of Dilaudid® has been reported by a number of DEA field offices including Atlanta, Boston, Chicago, Dallas, Detroit, Houston, Los Angeles, New York, San Antonio, St. Louis, and Washington D.C. The street price of a 4 mg tablet of Dilaudid®, the most common dosage strength reported, ranges from \$5 to \$100 per tablet depending on the region. According to DEA's National Forensic Laboratory Information System (NFLIS), there were 3,924, and 3,709 hydromorphone drug items submitted to federal, state, and local forensic laboratories in 2015 and 2016, respectively. During 2017, the number of seizures continued to decrease with 3,151 items identified as hydromorphone were submitted to forensic laboratories. For 2018, it is estimated that approximately 2,310 drug items have been submitted.

The 2016 National Survey on Drug Use and Health (NSDUH) reported that among the 2.5 million and 2.1 million individuals, aged 12 and older used hydromorphone products in 2015 and 2016, respectively, 261,000 and 239,000, respectively misused the hydromorphone products within the same year. For 2017 and 2018, any past year use of hydromorphone products continued to decrease with 1.9 million and 1.8 million persons, respectively, aged 12 years or older, as well as, among individuals within the same age group that misused hydrocodone products in the past year (i.e., 244,000 persons in 2017 vs. 229,000 in 2018).

Control Status:

Hydromorphone products are controlled in schedule II of the federal Controlled Substances Act.