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Heroin

 Heroin is a highly addictive substance of the opiate group. Its usage brings about serious psychological and physiological effects among users. Being easy and cheap to access, it is often obtained easily by young people who begin to suffer from its short and long term effects shortly after initial use. The treatment itself is a complex and long process which involves social rehabilitation as well as removal of the substance’s psychological and physiological addiction. The paper will further explore the origin of the drug, its history, etymology, and treatment, and discuss the laws that govern its use.

 Heroin is an opioid drug and is also known as diamorphine. It is a natural substance that is extracted from the seed pod of poppy plants that are grown in Mexico, Southwest Asia, and Colombia. 66% of the world's opium was produced in Afghanistan in 2015. Heroin is a pain-relieving narcotic that commonly assumes the form of a white or brown powder, but some forms such as black tar heroin can also look like a sticky black substance(National Institute on Drug Abuse). The drug was first synthesized in 1874 by C.R. Alder Wright who used morphine from opium to create it. Today, nearly 17 million people are addicted to opiates, while 1.6% of the U.S. population is believed to have used heroin at some point in their lives (American Addiction Centers). Most fatalities from opioid addiction are usually the result of a heroin overdose.

 Heroin is usually used as a recreational drug, smoked or injected for its euphoric effects. Some more pure forms are administered through inhalation, while the route of administration also determines the onset of its effects. The pleasure or ‘high' obtained from the use of the substance is proportional to its extent of diffusion within the user's blood. The fastest route of administration is intravenous injection which causes its concentration within the blood to rise quickly (National Institute on Drug Abuse). Other forms of administration such as smoking, insufflation, suppository administration, and ingestion produce less powerful effects respectively.

The administration of heroin produces a feeling of euphoria, pleasure, or ‘rush' in the user. Some of the short-term symptoms which immediately follow use can include warm skin flushing, dry mouth, a sense of heaviness in the legs and arms, vomiting and nausea, mental functioning becoming clouded and severe itching. Some users can experience back and forth states of semi-consciousness and staying conscious. Users exposed to the narcotic for a considerably longer time develop chronic effects which may include collapsed veins, insomnia, and damaged nose tissues from inhalation, stomach cramping, and constipation. More serious complications can also arise within chronic abusers such as anti-social personality disorders, depression, sexual dysfunction, pneumonia and irregular menstrual cycles in women (National Institute on Drug Abuse). Moreover, heroin addicts also experience withdrawal symptoms if they abruptly cease its use. These symptoms may start even a few hours later than the usual time cycle and may involve severe bone and muscle pain, restlessness, diarrhea, sleep problems and vomiting. Further withdrawal could lead to uncontrollable leg movements, goosebumps and cold flashes accompanied by severe cravings.

 The effect of heroin on the brain is on multiple levels. First, it provides a rush or burst of ‘good’ feelings that users describe as the state of being ‘high’ or relaxed. The feeling is often followed by nausea or drowsiness. After a dosage is administered, heroin enters the brain rapidly, and its molecules attach themselves to opioid receptors within the cells located in the parts of the brain that are usually involved in controlling the heart rate, breathing and sleeping and the parts producing feelings of pleasure and pain. A chronic heroin addiction can also lead to loss of white matter in the brain, which may affect the user’s behavior control, decision-making and response to stress.

 One of the worst parts of heroin addiction is its high addictive value. Even after a single instant of use, some people may experience cravings for the next dose. Moreover, those who regularly use it develop a tolerance for it which leads to a situation where they need frequent and higher doses to achieve the same effects. Continual use of the drug leads to substance use disorder (SUD) which can cause further health complications and prevent users from meeting their daily life responsibilities. Heroin users often overdose on the intake that can lead to life-threatening reactions. These overdoses can cause multiple complications such as heavier breathing, as a result of a lack of oxygen reaching the brain, or hypoxia which causes chronic impacts on the nervous system, that may lead to permanent brain damage or coma (CDC). An overdose can lead to death especially when other synthetic opioids like fentanyl are mixed with heroin. Such a mixture can lead to a quick overdose, while other additives such as powdered milk, starch or sugar can produce complications such as clogged blood vessels which further damage vital organs such as the liver, kidney, and lungs, in addition to mental health disorders. Furthermore, heroin users are also prone to risks from drug injection equipment which leads them to contract infectious blood-borne diseases such as hepatitis or HIV (National Institute on Drug Abuse). These injections can also lead to the heart valves becoming infected, causes abscesses and various other infections such as pneumonia.

 Treating a heroin overdose may require a range of behavioral and medicinal therapies that work together to reduce heroin use among people. Treatments are usually individualized to the patient's unique needs after a treatment approach is devised, observing their symptoms. Medication is developed to treat overdose as well as in the withdrawal process. Lofexidine is a non-opioid FDA approved drug which helps reduce withdrawal symptoms in opioid addicts. Other medications that are known for efficacy include methadone and buprenorphine, which work by attaching the drug's molecules to the same opioid receptors within different regions of the brain which also bind to heroin molecules. They block the heroin or other opioid drug effects through this action. However, they bind themselves weekly and thus reduce withdrawal symptoms and cravings. Another drug to treat heroin addiction is naltrexone which works by blocking opioid receptors, thus preventing them from causing an effect in the user. A combination of naloxone and buprenorphine can prove to be very effective in treating addiction but which requires full detoxification of the user to make the treatment effective. Detoxification improves a patient's response to these medications (CDC). At times, some users may require a higher dosage to help make their breathing action normal again, and thus treatment of these conditions require that the patient be shifted to the emergency department and have a physician administer these drugs. Some drugs such as Naloxone are also available in injectable forms and have developed certain nasal spray and auto-injector versions to help the addict's friends or family administer these drugs if the user has overdosed. Due to an increase in the number of overdose associated deaths among heroin users, there have been increased public health efforts to make these medications available to people who are at-risk. In some states, they are available from pharmacies without a physician's prescription to save lives in case of an overdose. Other non-medication therapies for heroin addiction include behavioral and psychological therapies which include contingency management and cognitive-behavioral therapies. These therapies are designed to change the behaviors and expectations of the drug user and help them manage their stress and triggers more effectively. They are provided with motivational incentives such as small cash rewards and vouchers, in the case of contingency management, to reinforce positive behaviors and help the users stay drug-free.

 Some narcotics and controlled substances such as morphine and codeine are legal if they have been prescribed by a physician for pain relief; however, heroin remains illegal because of its addictive nature and dangerous side effects. Heroin is a controlled substance under Schedule I of the International Convention on Narcotic Drugs, and it is completely illegal to possess, sell or produce heroin without a valid license. In the U.S. also, diamorphine or heroin is classified as a Schedule I drug under the 1970 Controlled Substances Act, which makes it illegal to possess unless the individual has a DEA license. According to law, possessing heroin for a quantity more than 100 grams or a mixture containing heroin can make the person liable to a minimum of 5 years sentence in federal prison. In the case of a first offense and an age less than 40 years, the sentence is no less than five years, whereas, in case of a serious injury or death arising from the possession, the sentence can be extended to over 20 years. A second offense can lead to 10 years of imprisonment with a $4 million fine on the individual. In case of a heavier quantity above 1 kilograms, then the first offense sentence can lead to 10 years of imprisonment and a $4 million fine on an individual while a second offense can lead to a sentence of no less than 20 years, with as much as a fine of $8 million imposed on the individual and a $20million fine can be imposed in case of an organization (IWU).

# **Bibliography**

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