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**CHEMICAL DEPENDENCY IN CHILDREN
AND EARLY ADOLESCENTS**

*A Review Submitted for Partial
Fulfilment of a Master Degree in Childhood
Studies (Med. Dep.)*

By

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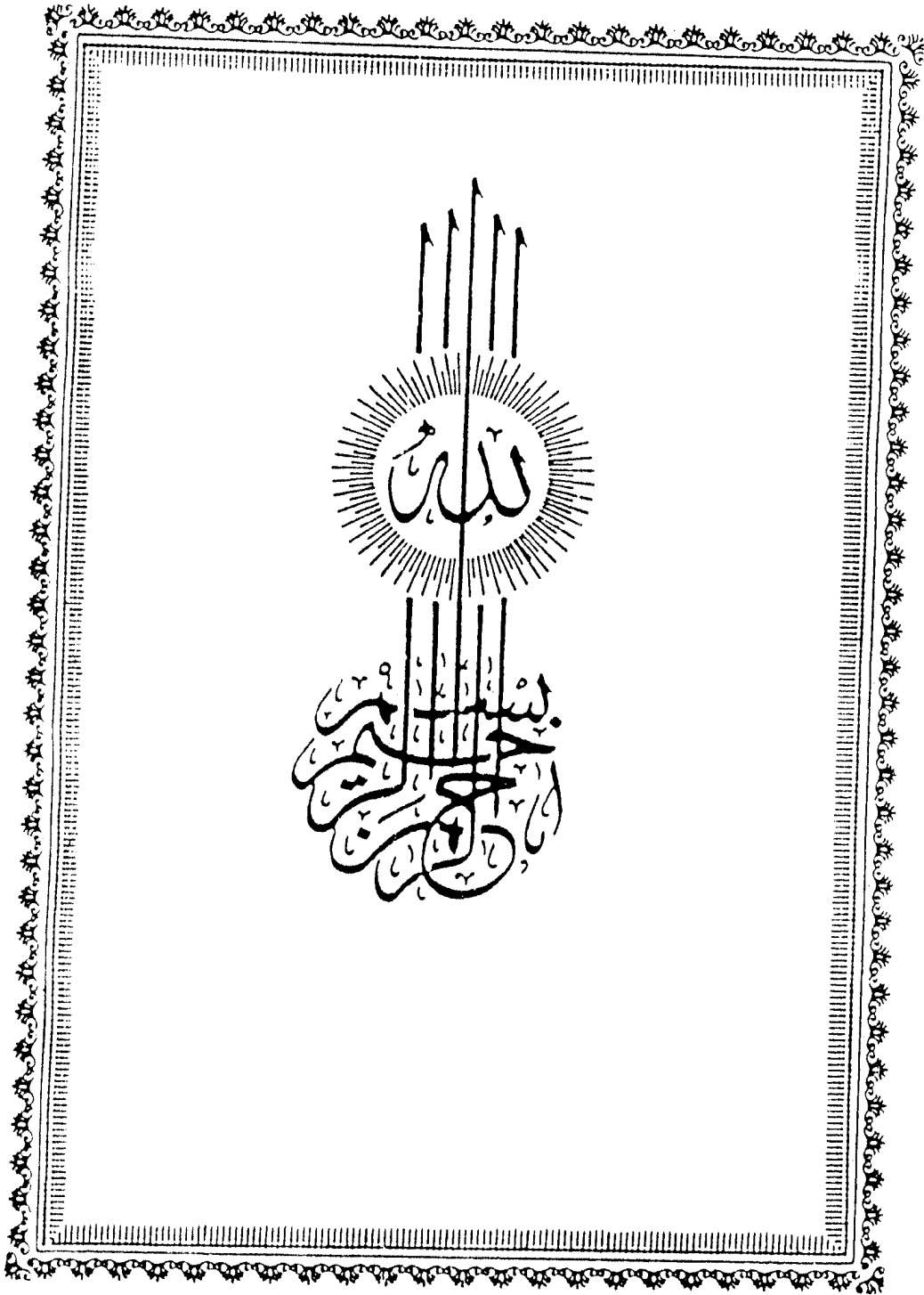
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INTRODUCTION AND IMPORTANCE OF THE STUDY

INTRODUCTION AND IMPORTANCE OF THE STUDY

Adolescents develop full-blown chemical dependency both by formal diagnostic and observational criteria. The chemically dependent adolescent uses alcohol and drugs compulsively in spite of experiencing continued adverse consequences as a result of substance use. Most adolescents who are chemically dependent do not have a primary psychiatric illness. This compulsive, continued use of psychoactive substances affects the young person in every sphere of his or her life: physical, cognitive, emotional, behavioral, developmental, social and spritual.

The family of the chemically dependent adolescent is also affected adversely and often the family becomes dysfunctional attempting to cope with this very sick young person.

Intellectual honesty demands that we admit that there is still much to learn about this area of medicine. This field of adolescent health care suffers from a historical lack of concerned physician involvement.

The diagnosis and treatment of chemically dependent adolescents has been done, most often, by nonmedical people who have been concerned with

the psychosocial-spiritual aspects of the illness. This has not necessarily been bad, just incomplete.

There is little in the pediatric and adolescent medicine literature about the developmental, medical and cognitive aspects of adolescent chemical dependency. This is an area of adolescent health care that cries out for more substantive research.

The aim of this work is to help physicians in their approach to the adolescent who may be abusing psychoactive substances and may, indeed, be chemically dependent.

Also, we hope that this review will encourage physicians to become involved in this area of medicine working in the field of adolescent chemical dependency is exciting and most rewarding. Until physicians begin to take a leadership role in the diagnosis, treatment, follow up and prevention of adolescent chemical dependency, progress in this area of adolescent medicine will continue to be slow.

REVIEW OF LITERATURE

STIMULANT AND NARCOTIC DRUGS

STIMULANTS

Amphetamines:

Amphetamines are a class of drugs that include several specific chemical agents. The four most common agent in this class include amphetamine (Benzadrine), methamphetamine (desoxyn), dextro-amphetamine (Dexoadrine), benzphetamine (Didrex), plus the combination amphetamine and dextroamphetamine (Biphetamine). Pharmacologically, these agents are quite similar, differing only in relative potency and half life, central nervous system (CNS) activity versus peripheral activity and onset of action.

These drugs can be taken orally, inhaled (sonrted) or injected. The oral route is usual in the high school age group. After absorption of the drug the user may appear agitated, nervous, and talkative. The user may lose his appetite, experience insomnia and diarrhea, pupils are often dilated and there is an increase in both blood pressure and heart rate. Intravenous use can cause death by stroke or heart failure.

Amphetamines exert their effects primarily by enhancing the release of neurotransmitter from presynaptic neurons. There is an evidence that the amphetamines exert a direct stimulant action on post-synaptic catecholamine receptors and may prevent reuptake inactivation of released neurotransmitters similar to the tricyclic antidepressants, neurotransmitters affected by amphetamines include norepinephrine, dopamine and 5-hydroxytryptamine (Tyler and Sheriden, 1980).

Centrally, amphetamines produce restlessness, agitation, tremor and insomnia, probably because of the stimulant effects exerted on the reticular activating system and cortex. Other effects include increased wakefulness, alertness, concentration, production of speech and enhanced physical performance with a false sense of well-being and elevated mood.

Occasionally in normal doses users experience headaches (generally vascular) cardiac palpitations, vasomotor disturbances, confusion, depression, and paranoia. Appetite suppression is thought to be due to amphetamines' effect on the lateral hypothalamic feeding center and not on the satiety center (Kraus, 1981).

Amphetamine toxicity is generally as a result of overdosage and manifests itself as restlessness, irritability, talkativeness, tension, weakness, insomnia, euphoria, dizziness, increased libido, assaultiveness.

Cardiovascular response to toxic doses of amphetamines includes headaches, Chills, fever, pallor or flushing and anginal pain. Gastrointestinal complaints consist of dry mouth with associated metallic taste and cramping and diarrhea. Fatal poisoning with amphetamines results in coma, convulsions and death (Dietz, 1981).

Chronic use of amphetamines leads to the development of an amphetamine psychosis. Paranoia is the most common symptom, but the user may experience false belse beliefs (delusions or hallucinctions). Tolreance and physical dependence develop rapidly; the term sometimes applied to this rapidly developing tolerance is tachyphylaxis. (Cox and Smart, 1972).

Over-Counter Stimulants:

Over-the-counter stimulatnts are also called pseudospeed. These drugs are legally self-administered and are available in pharmacies and grocery stores.

They contain various amounts of phenylpropanolamine, caffeine and ephedrine. If one compares the caffeine content of various preparations, it appears harmless initially. Conversely, a young person could seriously overdose on one of these products, becoming quite agitated with headache, hypertension, palpitations and an amphetamine-like paranoia. The desired purpose in using these preparations is to increase energy and the ability to concentrate. Caffeine will achieve this purpose by prolonging the amount of time that one can concentrate, warding off fatigue (Raz, 1983).

Lookalike Stimulants:

Lookalike medications refer to medications designed to look like the CNS stimulants. Young people can obtain large quantities of the capsules from companies advertising the products in magazines. Many children feel that these preparations are less harmful than true "speed" and therefore are okay to use. Several reports have subsequently appeared warning about side effects with phenylpropanolamine, including agitation, palpitations, tachycardia, and increased blood pressure. Phenylpropanolamine is a drug that probably directly stimulates adrenergic receptors and perhaps indirectly stimulates both

alpha-and beta-adrenergic receptors by releasing stored norepinephrine (Robbins, 1979).

The most serious aspect is the use of drugs for mood alteration by young people. These drugs are taken to achieve a mood change and often are mixed with alcohol, thus becoming an early introduction to the abuse of mood-altering drugs. When taken in large quantities, they do produce amphetamine-like effects including anxiety, headache, restlessness, rapid respiration and heart rate. There have been reports of severe hypertension. These drugs are very easily available and are being used by many young children (Kraus, 1981).

- ephedrine - β stimulant - resorcinol - ventolin

Narcotics:

Narcotics means an agent that causes sleep. From this point, confusion exists. Some refer to narcotics as opiates; others apply the term to any analgesic that can cause dependence, whereas still others feel that narcotics are those substances that are abused by users and that are for the most part illegal.

Most of narcotics can produce analgesia without loss of consciousness, although most generally produce some degree of drowsiness (The nods). Opiate derivatives exert their effect on the CNS and intestine

at specific opiate-receptor binding sites. There are several subtypes of opiate receptors, capable of producing some degree of respiratory depression, mood changes (euphoria or dysphoria), mental clouding, nausea and vomiting. Anesthesia can result at higher doses and often is augmented with benzodiazepines for minor surgical procedures. Some narcotics (notably the opiates) produce miosis (the characteristic pinpoint pupils), which is antagonized by atropine (Rounsaville et al., 1986).

Possibly the most dangerous complication of narcotic abuse is respiratory depression. This results from a direct suppression of the respiratory centers in the brain stem, causing a reduced sensitivity and responsiveness to increased serum carbon dioxide tension.

With the exception of mild orthostatic hypotension, the narcotics have little effect on the cardiovascular system. The opiates appear to have more of an effect on peripheral vasodilation than do the nonopiate narcotics. Large doses of opiates, especially when used intravenously, produce bradycardia. All of the narcotics cross the placental barrier, so that infants born to physically dependent mothers usually demonstrate withdrawal from 1 to 4 days after birth (Kleinkncht et al., 1980).

In cases of acute toxicity, the narcotics can produce profound CNS depression, including respiratory depression, cold, clammy skin, hypothermia, bradycardia and flaccid skeletal muscles. Chronic intoxication with the narcotics may result in tolerance, psychological and physical dependence as well as diminished analgesic response.

The abstinence syndrome varies from person to person and probably reflects the potency of the drug, dosage and length of time the person has taken the drug. The abstinence syndrome varies from person to person and probably reflects potency of the drug, dosage and length of time the person has taken the drug. The abstinence syndrome can be precipitated by injecting an antagonist such as naloxone, which produces withdrawal symptoms within a few minutes, peaking in about 30 minutes. The symptoms include restlessness, lacrimation, rhinorrhea and perspiration (Lakmeyer and Steingold, 1980).

*100
Physical Dependence*

Heroin:

One must realize that addiction to heroin almost certainly means being a criminal. Heroin is illegal but is sought because its onset of action is a faster.

Overdose by obtaining heroin with too high narcotic content is always a possibility, with death resulting from pulmonary edema, suffocation, or respiratory depression.

There is a definite correlation between opiate addiction and delinquency. Studies have shown opiate users to be involved in criminal activity. When delinquency and drug abuse coexist, the delinquency precedes the drug dependence (Kraus, 1981).

Overdose is not the only medical danger of heroin use. In a study of heroin addicts with nephrotic syndrome, heroin use was highly correlated with sclerosing glomerulonephritis and end-stage renal disease (Cunningham et al., 1980).

In addition, there are respiratory problems with cough, dyspnea, and chest pain. Pneumonia is common, as well as liver dysfunction, especially hepatitis. There are also effects on the genitourinary and musculoskeletal system (Sterubaach et al., 1980).

In a study of the immunoglobulins of heroin users, significant elevations of IgM were found in the intravenous group, whereas IgA was elevated in the nonparenteral group. The correlation also has been made concerning the use of intravenous narcotics and susceptibility to autoimmune deficiency syndrome [AIDS] (Blanck et al., 1980).

... apted des

... Stadler

HALLUCINOGENS

Substances that produce hallucinations and illusions have been used in many contexts by human beings for thousands of years. They first captured the American public's imagination and concern in the early to mid-1960s during the age of psychedelic experiences and of the "flower children". With proponents such as Timothy Leary, a whole culture grew up surrounding psychedelic or hallucinogenic substances such as lysergic acid diethylamide (LSD), mescaline and psilocybin, the "magic mushroom" (Cohen, 1984).

Drug assays with the hallucinogens are frequently inconclusive. The small molecules of hallucinogen taken in small dosages distribute widely, thus the drug is generally undetectable even when the patients with clinically intoxicated. Blood assays are not of value, and urine assays are more reliable for PCP. Even for the same urine assay, false positives and negatives occur owing to the many analogues available (Cohen, 1984).

It is important to define what exactly a hallucinogen is. Although we use the term, hallucinogen, these drugs produce a distortion of perceived reality and do not produce hallucinations, which involve

perceiving experiences that do not truly occur. Some have termed these drugs "illusogens" (Strassman, 1984).

LSD drug:

LSD is derived from ergot fungus. Its use as a street drug adolescents did not become a problem until approximately 15 years ago.

LSD is usually supplied in the form of tiny cylindrical tablets (microdots), as tiny gelation squares (windowpanes) or "blotters", small pieces of paper to which the drug is applied and which are then chewed to extract the LSD (Johnston et al., 1986).

LSD is the most potent psychoactive drug known; however, it has an extremely high safety margin. It can have effects in doses as low as 10 to 15 ug and yet is not fatal at doses hundreds of times higher. Tolerance to repeated doses is both developed and is lost rapidly. Psychologic and behavioral effects are felt within a few minutes and peak at 2 to 4 hours with a gradual return to the predrug state after 6 to 12 hours. This drug is rapidly absorbed through the gastrointestinal tract and diffuses to all tissues including brain tissue. LSD does not produce a withdrawal syndrome (Strassman, 1984).

Within minutes after ingestion, sympathomimetic physical symptoms occur, followed by psychologic effects 30 to 90 minutes later. LSD produces dramatic subjective effects. There are visual illusions and auditory illusions. Synesthesias ("seeing" smells, "hearing" colors) are very common. Sense of touch is magnified and the feeling of passage of time is markedly distorted. Performance on tests for attention, motivation and concentration is impaired but the feeling of competence and true insight is generated. Thoughts are visualized and thinking does not proceed in logical sequences but jumps in a nonrational manner to conclusions that appear to be more valid than those obtained through normal thought processes (Cohen, 1984).

High doses seem to produce a fusion of perceptions and feelings into a thinking-feeling-sensing-wholeness. Paranoia is also frequently encountered. The emotional response to the LSD experience can be positive or negative, that is, the "good trip" or the "bad trip". A bad trip can produce a panicky feeling in which one's personality is felt to be falling apart (Strassman, 1984).

The adverse effects of LSD seem to be both acute and chronic. The acute effects include a state of paranoia and depression and feelings of confusion and fragmentation. Previous good trips do not guarantee that one will have a good trip the next time out. Vital signs can change with the emotional state; often patients present with pupillary dilatation, tachycardia, and fever (Cohen, 1984).

Chronic adverse reactions include flashbacks, psychoses, depressive reactions, and chronic personality changes. It is still not clear whether LSD causes such major psychologic effects or whether it "uncoveres" preexisting problems. Flashbacks are reexperiences of the original LSD-induced state, which occur without reingestion of the drug. The mechanism that causes these flashbacks is unknown. When diagnosing an LSD reaction, the physician is usually confronted with a patient experiencing the adverse effects of the drug because the good effects do not bring a patient to health care setting (Cohen, 1984).

Psilocybin (Psilocin):

Psilocybin and psilocin are the active ingredients in psychedelic mushrooms. These are the mushrooms that have been used in certain Native American religious ceremonies for many years. They became very popular with the "acid" culture in the early and mid 1970s, but because of their rarity, their use today as street drugs is extremely uncommon (Cohen, 1984).

Mescaline:

Mescaline, the active ingredient in the peyote cactus, also continues to be involved in Native American religious experiences.

Nutmeg and Morning Glory:

Nutmeg and mace are products of the fruit of the tree *Myristica fragrans*. The nut in the fruit is nutmeg, and when powdered and dried, it is called mac. The essential oil in the nutmeg contains myristicin, which is metabolized in vivo to 3-methoxy-4,5-methylenedioxyamphetamine (MMDA). Another ingredient, elemicin, is converted to 3, 4, 5-trimethoxyamphetamine (TMA).

CNS effects as well as nausea, vomiting, and bradycardia occur with ingestion of 5 to 15 gm of nutmeg. After the acute delirium, heavy sleep occurs followed within 24 hours by uneventful recovery (Goldfrank et al., 1982).

Morning glory seeds contain LSD and produce a state similar to mild LSD ingestion. Adverse effects have included nausea, diarrhea and coma.

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COCAINE

stimulant
or
cocaine

Cocaine is the principal alkaloid of the coca shrub (*Erythroxyloncoca*) physicians prescribed it for mood alteration and unrelated medical conditions such as morphine and alcohol addiction, digestive disorders, and asthma. Recognition of potent anaesthetic and vasoconstricting properties led to extensive experimentation and use in eye, nose and throat surgery (Smith, 1984).

The incorporation of cocaine into numerous elixirs, tonics, and wines as a euphoriant resulted in a minor epidemic of abuse lasting well into this century. By the early 1900s cocaine was recognized as a dangerous drug, capable of being abused and producing dependence (Grinspoon and Bakalar 1985).

Goodman and Gilman observed that amphetamines, like cocaine, exhibit almost identical withdrawal symptoms and appear to meet the criteria for a withdrawal syndrome. They further noted the degree to which a drug pervades the life of the user, and the tendency to relapse following withdrawal, some compulsive users of amphetamines, or cocaine are addicts.

The pathway by which cocaine is metabolized can be presented as follow:

Ecgonine Methylester (EM)

Cocaine

Ecgonine

Benzolyecgonine (BE)

After a single use of cocaine, BE or EM, or both, will be detected in the urine for at least 2 days and possibly for up to 1 week. Metabolism is primarily accomplished in the liver and studies suggest that cocaine is hepatotoxic with repeated use (Cook et al., 1985).

Pharmacologic Effect of Cocaine:

The recreational user of cocaine is attempting to achieve a sense of increased well-being, additional energy, increased sexual excitement. Cocaine addict is unable to stop using cocaine and in a sense does not feel normal without the repeated use of the drug. No dramatic withdrawal symptoms as seen with other substance, but depression, irritability, anergia, amotivation, appetite changes, nausea, shaking psychomotor retardation, irregular sleep patterns and hypersomnia (Gold et al., 1985).

Cocaine affects three sets of receptors in the brain. These are norepinephrine, dopamine and serotonin receptors. The pharmacologic effects are different depending on which receptor is considered.

Cocaine blocks norepinephrine reuptake, causing tachycardia and hypertension and vasoconstriction. It also may produce diaphoresis and mild tremor. A cocaine overdose may produce generalized body shaking (Gold et al., 1985).

Cocaine also affects dopamine receptors. Dopamine reuptake is decreased, and chronic use decreases brain dopamine. This effect is related to decreased appetite, stereotypic behavior, hyperactivity and sexual excitement. These are frequently desired effects for the cocaine user, however, chronic use can lead to sexual impotence rather than sexual excitement and to the inability to have orgasms. One of the complications of chronic stimulant use is a psychosis (Johanson, 1984).

Cocaine also affects serotonin metabolism by reducing the concentrations of serotonin (that is, 5-hydroxytryptamine) and its metabolites. Serotonin is thought to mediate the sleep-wake cycle and significantly decreasing serotonin, decreases the need for sleep (Gold, 1985).

An additional effect of cocaine on the central nervous system called kindling is described by Post and associates (1976). This is an electrical phenomenon and it is not known which receptors are involved.

In this mechanism, repeated use of cocaine may lead to motor seizures that are frequently seen in heavy cocaine users.

Cocaine is available in two forms: cocaine hydrochloride the usual street preparation and the alkaloidal base known as cocaine freebase. Preprocessed freebase is now readily available on the streets as "crack" or "rock". Cocaine hydrochloride is soluble in water and therefore easily absorbed through mucous membranes (Smith, 1984).

It is usually sniffed into the nose—a practice known as snorting. A typical amount inhaled is about 30 mg of varying purity. The water solubility of cocaine hydrochloride also renders it suitable for intravenous use, often mixed with heroine, a combination known as a "speedball".

Cocaine hydrochloride has a high vaporization point and is unsuitable for smoking. Freebase cocaine vaporizes at lower temperatures and smoking is the preferred route of administration. The freebase is heated and inhaled through a water pipe, producing high levels in the CNS even more rapidly than intravenous injection. The entire process is known as "freebasing".

Both intravenous use and smoking are highly and rapidly addictive. We have noted a progressive increase in freebasing, which could be viewed as equivalent to injecting cocaine without the stigma of a needle (Gold et al., 1985).

Unique Properties of Cocaine:

Stimulant properties of cocaine is a powerful short-acting CNS stimulant and is virtually the only potent sympathomimetic drug abused today. Virtually all other drugs of current abuse have sedating properties or blunt the user's perception of reality.

Cocaine initially and at low doses is a powerful euphoriant and causes increased alertness and energy. This shortlived effect that initially is compatible with enhanced sociability and with increased work is a potent stimulus to continued use. Intense physical stimulation and vasoconstriction lead to pulse, blood pressure and temperature causing acute changes and sudden death which is caused by cerebral hemorrhage, convulsions respiratory arrest, cardiac arrhythmias, cardiac arrest and myocardial infarction (Post and Kopande, 1976).

Symptoms of Cocaine Use:

An increasing cocaine problem may be undetected for long periods and the symptoms of cocaine use attributed to other things such as moodiness and school pressures. The adolescent may seem for a time to be more sociable, agreeable, energetic, and ambitious when using the drug than when not using it.

Many of the signs and symptoms of cocaine use are nonspecific and only when seen together do they form a diagnostic pattern. The presence of several should alert the family and physician to consider seriously the possibility of cocaine use:

- 1- Prior early use of tobacco.
- 2- Rapid mood shifts.
- 3- Personality changes.
- 4- Change in friends.
- 5- Chronic lack of money. Borrowing, stealing and selling valued possessions result from the incessant need to purchase drugs.
- 6- Finding of cocaine paraphernalia.
- 7- Physical findings.

Medical Complications of Cocaine Use:

Intranasal use produces primarily upper respiratory symptoms, chronic nasal congestion. Colds that last for months and allergy-like symptoms when no allergen can be demonstrated. Epistaxis and recurrent sinus infections are common (Itkonen et al., 1984).

Smoking or freebasing causes chronic cough, hemoptysis, expectoration of back, non bloody material and anterior chest wall pain. Decreased diffusion capacity in heavy freebase smokers has been reported (Itkonen et al., 1984).

Intravenous injection results in needle tracts, local abscesses, thrombophlebitis, as well as all the complications of nonsterile needle use, including septicemia, hepatitis B, subacute bacterial endocarditis and increasingly AIDS.

Systemically, acute cocaine use affects the central nervous system, producing grand mal convulsions, cerebral hemorrhages, hyperthermia and respiratory paralysis. The heart may respond to intense stimulation with ventricular ectopy progressing to ventricular tachycardia and ventricular fibrillation (Mittleman and Wetli, 1984).

The early phase of etimilation may cause the teanger to appear manic stating that there are bugs under his skin or ligbrs in peripheral using (Gold et al., 1984).

Chronic cocaine use by any method results in weight loss, lethargy and impotence. These symtoms, somewhat the reverse of those seen with acute short-term use, have been postulated to be due to neurotransmitter depletion resulting from constant cocaine stimulation. The observation that bromcriptine, a dopamine agonist, is beneficial in cocaine treatment supports this theory (Dackis et al., 1986).

MARIJUANA

Marijuana comprises the crumbled, cured leaves, small stems and flower clusters of the resin-producing varieties of the hemp plant, *Cannabis sativa*. Indigenous to Asia, the plant originally was cultivated worldwide as a source of hemp fiber, oil and homeopathic medicines. Varieties of the plant are often 5 to 8 feet tall and branched, with compound leaves composed of seven to nine serrated, slender, spearhead-shaped leaflets.

Drug-producing varieties of the plant have glands that secrete a resinous substance containing about 60 unique compounds, called cannabinoids, the most psychoactive and prevalent of which is delta-9-tetrahydrocannabinol (Δ^9 -THC).

The Δ^9 -THC content of *C. sativa* is influenced by genetic factors, by the place and circumstances of its growth, by the method of storage of the plant material and by the number of months elapsed since harvest time. The potency of Δ^9 -THC diminishes with time, especially for hashish (Spector, 1985).

Use of Marijuana as A Psychoactive Drug:

The primary mode of using marijuana or hashish in the United States is inhaling the smoke of marijuana cigarettes ("joints"), made by rolling 500 mg to 750 mg of marijuana in a thin paper. Smoking implements such as hollow smoking stones, miniature smoking pipes (bowls), or air-cooled or water-cooled smoking chambers (bongs) also may be used to cool and "sweeten" the highly irritating marijuana smoke, thus permitting the user to inhale a larger quantity (Landrigan et al., 1983).

To obtain maximal effect from marijuana, users must master a smoking technique somewhat different from that of smoking tobacco cigarettes or pipe tobacco. The experienced user inhales the smoke as deeply into the lungs as possible and holds his breath for 20 to 30 seconds or more in an effort to extract almost all the 9-THC into the capillary-rich pulmonary circulation. When this technique is followed, 50 per cent of the 9-THC contained in the crude marijuana is delivered into the smoker's blood stream and practically no 9-THC remains in exhaled breath.

Marijuana smoke has a pungent smell, resembling the smell of burning wet hay or leaves and clings to hair and woolen garments. Consumption of the same

amount of drug, of the same potency may produce minimal effects on one occasion and on another occasion, marked effects on cognition, mood and performance.

Pharmacological action of cannabis depends upon Δ^9 -THC, which is carried to blood stream and then to the liver. Mood altering, intoxicating and cardiovascular effect of the drug become evident within a few minutes after deep and sustained inhalation of Marijuana smoke, whereas oral administration of the drug has a 30 minutes lag period. The subjective effects last 2 to 2 hours somewhat longer if cannabis was eaten rather than smoked (Nawlan, 1977).

The LD₅₀ toxicity dose for 70 kg adult is 0.035 mg per kg of Δ^9 -THC. Hydroxylation and carboxylation enzymes in liver microsomes break Δ^9 -THC to non-mood altering carboxylic acid analogues of THC (THC-COOH). These are carried by enterohepatic circulation into intestinal lumen to be excreted in the feces (65 per cent) and through the renal circulation into urine (35 per cent). The effect of ingested cannabis begins in 30 to 120 minutes, peak in 2 to 3 hours, and lasts 3 to 6 hours.

Willett (1986), stated that cannabinoid metabolites can be detected in the urine for 2 to 3 days following one casual use of the drug. Unlike alcohol

intoxication, the high of marijuana can easily be overcome by volition, thus, a person high on marijuana may seem completely normal in appearance, speed and content of speech and affect (Cappel, Plin, 1973). After several hours of the high. This state gradually merges into a state of general physical and mental torpidity, irritability easily provoked to anger, drowsiness and sometimes sleep. During this gradual "coming down phase there is an intense craving for sweet drinks such as carbonated beverage.

Acute adverse (toxic) effects of marijuana include toxic psychosis, acute panic reactions and flashback phenomena. Symptoms of acute toxic psychosis include excitement, confusion, disorientation, delusions, depersonalization, visual hallucination and full-blown delirium (Szymanski, 1981).

Acute panic reaction ("bad trips") may be accompanied by abdominal discomfort, headache, anxiety, depression, morbid fear of being "found out" fear of dying, restlessness, uncontrollable feelings of aggression and paranoid ideation. Panic or psychotic toxic reactions are more frequent in the novice marijuana smoker. The occurrence of flashback phenomena after marijuana use has been reported, but flashbacks are uncommon.

Safe operation of a motor vehicle is often compromised if the driver is acutely intoxicated by marijuana (Burns, 1980). Marijuana can impair motor activity in unpredictable way, including altering reflex responses to sensory stimuli; altering perceptions of the passage of time, of depth (e.g, distance to a traffic light) or of colors and impairing short-term memory. A person under the influence of marijuana also has impaired vigilance.

In addition, marijuana-intoxicated drivers of motor vehicles may fail to respond optimally to visual clues because of preoccupation with drug-induced imagery or music from the car radio or tape recorder.

Impairment of vigilance, coordination and reaction time may persist for 12 to 24 hours after the euphoria is gone: teenagers who drove after smoking marijuana on at least six occasions per month were 2.4 times more likely to be involved in traffic accidents (Moskowitz et al., 1981).

Stinging and burning sensations in the mouth and throat frequently occur after marijuana smoke is inhaled, and a dry cough present. Frequent hashish smokers occasionally have swollen, inflamed uvulae (Tennant et al., 1971).

Morris (1985), found that nontaboacco-smoking heavy marijuana smokers had mild but significant functional impairment of airway conductance, whereas pathology investigations have shown diffuse infiltration of mononuclear leukocytes into the alveoli and interstitium of the lungs.

Soueif (1971), stated that studies of Egyptian prisoners provide strong evidence that link amotivation to heavy marijuana use by persons who perform highly skilled tasks or are employed in jobs demanding concentration and decision making.

ALCOHOL USE AND ABUSE

Since the beginning of recorded history, humans have consumed alcoholic beverages for purposes of religious ceremony, celebration, medicinal therapy and recreation. Unfortunately, problem drinking also has been recognized and reported for thousands of years. There is continuing debate as to whether alcohol is a beverage or a drug and whether its use is always hazardous or is, at times, beneficial to physical and/or psychological health. There is even greater debate as to whether youth should be restricted from all use of alcohol or encouraged to develop safe and responsible drinking patterns through progressive controlled exposure.

Alcohol is the drug most often abused by the largest number of children and adolescents. More than 90% have tried alcohol at least once before graduation from high school. In 1984, two thirds of senior high school students admitted to using alcohol at least once a month. Nearly 50% of male high school seniors and 30% of female seniors reported drinking excessively at least once every 2 weeks. One in 20 high school seniors reported drinking daily. Despite efforts to address this problem, there has been no

significant change in these statistics for the past decade according to several national surveys. Alcohol use by school drop-outs has not been recorded but is suspected to be even grater (Foster et al., 1983).

Exposure to alcohol frequently occurs before or durign early adolescence. Of high school students who have used alcohol, 10% had their first drink by grade 6, 30% by grade 8 and 55% grade 9 according to one national survey. In a nassau County, New York, school study, drinking to intoxication was reported by 22%, 14% 8% and 3% fifth, fourth, third and second grade students, drespectively (Rice, 1982).

Alcoholism is a behavior disorder that leaves the affected person "devastatingly" physically or emotionally disabled. "Alcoholics", are sick people (Keller, 1976).

ALcoholism has been recognized as a disease since 1933, when the term "alcohol addiction" was first used in the Standard Classified Nomenclature of Disease published in that yaer (Logk, 1933).

Most adolescents with a substance abuse disorder are abusing several drugs. Substance-abusing adolescents will, however, identify a specific drug as their drug of choice. Alcohol remains the most common drug of choice of the substance-abusing adolescent.

Adolescents who drink prefer beer, although wine coolers are becoming increasingly popular among young drinkers. Most adolescents who are experimenting with alcohol do not drink liquor. Any teenager who admits to drinking vodka, gin, whiskey, or bourbon, even occasionally, should be suspected of having an alcohol abuse disorder (Johnson Institute community Project, 1986).

It has become clear that the distinction between abuse and dependence is not often easy to make, especially in adolescents. A psychoactive substance abuse disorder will be diagnosed as "dependent" if any three of the following criteria are met (Wilcox, 1985).

- 1- Frequent preoccupation with, seeking or taking the substance.
- 2- Frequent use in larger amounts or over a longer period than intended.
- 3- Need for increased amounts of the substance to achieve intoxication or desired effect, or diminished effect with continued use of the same amount.
- 4- Display of characteristic withdrawal symptoms.
- 5- Frequent use of the substance to relieve or avoid withdrawal symptoms.
- 6- Persistent desire or repeated efforts to cut down or control substance use.

- 7- Frequent intoxication or impairment from substance use when expected to fulfill social or occupational obligations, or when substance use is hazardous (e.g., driving when drunk).
- 8- Relinquishment of some important social, occupational, or recreational activity to seek or take the substance.
- 9- Continuation of substance use despite a significant social, occupational, or legal problem, or a physical disorder that the person known is exacerbated by the use of the substance.

Alcohol Absorption and Metabolism:

The weak polar structure of ethyl alcohol allows it to be absorbed from the stomach and small intestine. Alcohol is absorbed over a 2 to 6 hours period (Bloom, Greenwald, 1984). The presence of food in the stomach, especially food with a high fat content, delays the absorption of ethanol.

Ethanol Alcohol dehydrogenase Acetaldehyde

Aldehyde dehydrogenase Acetyl

$\text{CO}_2 + \text{H}_2\text{O}$

The preceding is a diagram of major catabolic pathway of ethanol. Disulfiram (Antabuse) is an inhibitor of aldehyde dehydrogenase.

Approximately 99 per cent of ethanol is oxidized primarily in the liver. Small amounts are metabolized by the kidney and other extrahepatic oxidative enzyme systems (Litawtz, 1986). Individual variance in activity of alcohol dehydrogenase may explain the variable susceptibility to alcohol intoxication at the molecular level.

Katers and Co-workers reported that anyone who drinks alcohol regularly and in large amounts develops increased rates of blood ethanol clearance (i.e., metabolic tolerance). Regular drinkers, however, are able to tolerate increasing amounts of alcohol mainly because of central nervous system adaptation (Kissin, 1985).

Aldehyde dehydrogenase converts acetaldehyde to acetyl COA and is inhibited by disulfiram (see equation). Therefore, when an individual who has taken disulfiram drinks alcohol, serum acetaldehyde levels increase, causing systemic vasodilation which leads to headaches, orthostatic syncope, nausea, vomiting, facial flushing, diaphoresis and marked uneasiness.

Physical Effects of Ethanol:

Ethanol diffuses rapidly into all intracellular and extracellular compartments of the body; therefore, the blood concentration of ethanol directly reflects the concentration of the chemical throughout the body. The abuse of alcohol impacts on multiple organ systems. The most pronounced effects are on the central nervous system and the gastrointestinal tract.

Ethanol is a central nervous system depressant and has a pharmacologic effect similar to ether. Parts of the brain respond differently to ethanol, and therefore its behavioral effects may differ from its neuropharmacologic effects. For example, the depressant effects of ethanol on inhibitory control centers may paradoxically produce excitatory behavior.

In low doses, alcohol acts both as a stimulant or disinhibitor and as a relaxant. Some people also experience euphoria. At low blood concentrations, ethanol depresses the higher cortical centers, causing decreased mental activity and impaired judgment. At moderate levels, ethanol produces slurred speech and ataxia. At higher levels (approximately 350 mg per dl) alcohol produces lethargy, stupor and coma. A blood level of 500 mg per dl usually results in death (Kissin, 1985).

True alcoholic subjects have a greater tolerance and thus may need blood alcohol level almost 100 mg/dl higher than do occasional drinkers to achieve comparable impairment. The lethal dose is the same for both the alcoholic and nonalcoholic subjects (Kissin, 1985).

Gastrointestinal effects of alcohol include the modulation of certain enzymes, causing increased gastrin production and decreased pepsin secretion. Alcohol is also an irritant to the gastric mucosa. Increased gastrin production and the irritant effect of alcohol work together to promote gastritis. Therefore, a frequent complaint of the alcohol-dependent adolescent is epigastric burning. The alcoholic subject often exacerbates gastritis by taking aspirin to treat the symptoms of alcohol abuse (Seixox, 1975).

Ethanol affects multiple hepatic enzyme systems contributing directly to its pathophysiology. For example, ethanol inhibits pyruvate carboxylase, a gluconeogenic enzyme, causing hypoglycemia secondary to low glycogen stores. Protein systems also are altered, which leads to increased synthesis of very-low-density lipoproteins (VLDLs) and low-density lipoproteins (LDLs), resulting in elevated serum triglycerides and cholesterol (Glueck et al., 1981).

Mitochondrial functioning can be impaired or enhanced. The hepatic microsomal enzymes are induced by ethanol, resulting in altered half-lives of many medications, including penicillin, phenytoin, warfarin, phenobarbital, propoxyphene, benzodiazepenes, opiates and meprobamate (Seixas, 1975).

Fetal Alcohol Syndrome:

The most common cause of teratogenic mental retardation is the fetal alcohol syndrome (FAS). Signs and symptoms of FAS, in addition to mental retardation, include microcephaly, irritability in infancy, hyperactivity in childhood, diminished height and weight, short palpebral fissures, hypoplastic maxilla and philtrum a short, up-turned nose and relative prognathia in adolescence.

There is no documented safe level of ethanol use during pregnancy. However, ingestion of 89 ml per day of absolute alcohol, which is equivalent to 6 oz of 100-proof liquor, poses a severe risk to the fetus (Clarren and Smith, 1978).

Hazards of Alcohol Abuse:

The leading cause of death among Americans 15 to 24 years of age is alcohol-related motor vehicle accidents. The National Highway Traffic Safety Administration estimates that there are more than 7,000 such fatalities per year, with an additional 40,000 youths injured, many seriously and permanently disabled. These alcohol-related deaths or injuries occur nearly as frequently when the young are passengers when they are drivers. Alcohol has been implicated in a majority of drownings, fire-related deaths and fatal falls. Elevated blood alcohol levels have often been reported in those who commit suicides and in victims of homicide. Accidents, suicide and homicide account for 80% to 90% of deaths in adolescents (Foster et al., 1983).

Alcoholism or addiction to alcohol is uncommon in the young. Alcoholism develops from a complex interaction of inherited biologic factors and familial, cultural and environmental factors, exposure to alcohol. Alcoholism should be suspected in youths who demonstrate withdrawal symptoms from chronic alcohol use, tolerance for large quantities of alcohol, "blackouts" due to drinking, indiscriminate drinking

behavior, continued drinking despite negative consequences, or frequent alcohol-related accidents (Kandel, 1982).

Problem drinking by adolescents, as defined by the National Institute of Alcohol Abuse and Alcoholism, is drinking to the point of being drunk six or more times a year and/or having negative consequences from alcohol use two or more times a year. Negative consequences include impaired relationships with family, peers, or teachers; problems with school; problems with police; problems with dates; driving after drinking.

Barrison and others (1985), stated that female teenagers who use alcohol while pregnant increase the risk of complications associated with teenage pregnancy as well as risking giving birth to an infant with fetal alcohol syndrome. Young teenagers, especially, may be unaware of their pregnant state, may be denying the possibility they are pregnant, or may be so ambivalent that they delay prenatal care while continuing hazardous behavior such as drinking. Teenaged problem drinkers may represent the high risk-taking group that is most likely to engage in early and unprotected intercourse.

Adverse Psychosocial Effects:

Prolonged alcohol abuse may have a significant effect on normal adolescent psychosocial development. The resulting dysfunctional psychological state often consists of escapism, egocentrism, external focus of control, poor self-image and alienation. The effects on the adolescent's function in his or her family, school and peer group depend on the degree of involvement with alcohol (Macdonald, 1984).

As stated previously, there is a relationship between alcohol use and the incidence of unnatural deaths in adolescents and young adults. Such a relationship may exist because of alcohol-induced depression and other psychopathology. The effects of alcohol on mood, judgment and self control may also result in suicidal ideation and behavior (Eckardt et al., 1984).

Patterns of Alcohol and Drug Use Among Adolescents:

The physical and psychological consequences of drug use for adolescents are causes for serious concern. Adverse effects of drugs vary greatly and include toxic reactions, temporary impairment of function and the potential for dependence-an altered state in which a person requires continued administration in order to feel good or to avoid feeling bad.

The effects of drugs may be physical or psychological and may be further classified by their duration, acute versus chronic. The acute psychological effects of alcohol, marijuana and other psychoactive substances include changes in mood, concentration, judgment and cognitive function. Distorted sensory experiences, impaired motor skills and misjudgments may occur. Short-term memory loss, decreased attention span and perceptual changes may interfere with learning and school performance. Moreover, psychoactive drugs can produce several disturbances in mental functioning, such as extreme agitation, feelings of persecution and hallucinations.

The acute physical effects of alcohol and other drugs are usually trauma related. The leading causes of among young Americans between ages 15 and 24 stem from violent causes-homicides, suicides and accidents. A significant number of these can be attributed to alcohol and drugs. Approximately 8000 teenage highway fatalities annually are alcohol related. About one half of all homicides in this age group are associated with alcohol or drugs. Suicides are frequently related to alcohol and other drug use.

Chronic effects of alcohol and other drugs use may include such serious physical problems as cancer, cirrhosis and emphysema. Because of late onset of these conditions, young people are less likely to see them as reasons for abstinence. As prevalent and serious as the problems of drug-related morbidity and mortality are there is reason to believe that chronic psychological problems may be their worst effect. These may be divided into those that produce dependence and those that arrest psychological maturation or normal development. The easy euphoria achieved by drugs is powerfully reinforcing and leads the user to increasing dosages and frequency of use, until an overwhelming compulsion to use the drug may develop. The establishment of a pattern of regular drug use to achieve pleasure or to deal with problems is called dependence. The dependent person finds coping increasingly difficult without chemical assistance (Roger, 1987).

Adolescence is a transitional period during which children establish their individuality, build an adult value system and begin to become independent of parents. Drug use, however, is a serious obstacle to the intellectual and social development of young people and interferes with their natural progress

to mature adulthood by prolonging dependence and immaturity.

Since adolescents will most often begin using drugs in the company of friends or relatives, the chief influences affecting adolescent drug use were social. The media-advertising, radio and television-did their share to shape a permissive public attitude toward the use of drugs. Rock music stars and athletic figures, strong role models for adolescents, also promoted and glamorized tobacco, alcohol and drugs. Another important factor that influenced permissive attitudes among adults as well as adolescents was the belief that drugs use was harmless. Most people considered heroin to be dangerous, but they had little or no understanding of the risks of using other drugs such as marijuana. For the youngsters the immediate physical and social benefits of drugs seemed to outweigh any consideration of long-term consequences; drugs enhanced social interactions and relieved tension, anxiety, boredom and fatigue. Longitudinal studies of drug use suggest that involvement in drugs follows a predictable sequence. If a person uses one drug, he is more likely to use other drugs, individuals usually begin with the legal drugs, alcohol or tobacco progress to marijuana and then go on

to use other illicit psychoactive drugs or combinations of drugs. Use of drugs such as cocaine and heroin are unusual in those who have not perviously used alcohol and tobacco and/or marijuana (Kandel and Longan, 1984).

In general, higher proportions of boys than girls are involved in illicit drug use (especially frequent or heavy use). Cocaine is used considerably more by boys than girls. Stimulants such as amphetamines are used by slightly more females than males. This difference is attributed to the tendency for females to use amphetamines for weight loss whereas males are more likely to use amphetamines for recreational purposes.

VOLATILE SUBSTANCES

Cohen (1977), has outlined some typical reasons for use of these agents:

1- **Rapid onset of effect:**

The "high" induced by solvents begins within a few minutes of inhalation. The agents used are noteworthy for their lipid solubility. They are rapidly absorbed across the alveolar membrane and distributed throughout the body. They traverse the blood-brain barrier easily and because of their lipophilic nature, tend to accumulate in brain tissue. The "high" produced is much faster than that produced by alcohol.

2- **Quality and pattern of the "high":**

Most users of volatile substances report decreased inhibitions and a "floaty euphoria". The user is frequently giddy and lightheaded. Misperceptions and illusions are common. Inebriation induced by alcohol or marijuana is usually described as similar but not identical.

3- **Low cost:**

Many solvent inhalers are from low-income families. These substances may not be the users' first choice in inebriant, but they are frequently the most economical.

4- **Easy availability:**

Many of the volatile substances are available in homes in which alcohol cannot be found. Nearly every garage or household has a small supply of paint thinner, cleaners, or gasoline. These materials are also easily available in supermarkets, hardware stores and drug stores.

5- **Convenient packaging:**

Many of these substances are sold in very small containers that can be hidden with ease. This is particularly important to those who wish to "get high" during the school day.

6- **The legal question:**

In contrast to alcohol and the controlled substances, purchase and possession of these substances is not illegal in most jurisdictions.

Prevalence of Use:

Inhalants are frequently the first consciousness-altering substances used by children. Adolescents tend to abandon the use of inhaled agents after a year or two, sometimes moving on to other substances.

The use of inhaled substances appears to have remained relatively constant over the last few years. In a survey of drug use by high school seniors from 1975 to 1982, 10 to 13 percent of each senior class reported using inhalants at least once. Use of amyl and butyl nitrites, which was not surveyed until 1979, also held steady at 10 to 11 percent. A maximum 0.1 percent of the senior classes reported daily use of these substances. Daily users were defined as those persons using the substances 20 or more times in the month prior to the survey. These rates of use are approximately equivalent to the rates reported for lysergic acid diethylamide (LSD) and phencyclidine [PCP] (Stephens et al., 1978).

The prevalence of inhalant abuse varies markedly from one population to another. Boeckx and others (1977), reported on two isolated Canadian Indian reservations in which nearly 100 percent of the children had sniffed gasoline at least once.

Conulehan and his Colleagues (1983), in a study of Navajo adolescents, reported that 11.4 per cent of their junior and senior high school students had sniffed gasoline at least once and 7.5 per cent reported regular use.

Techniques of Use:

As a general rule, inhalant use is a group activity. Most commonly, the agent is placed in a plastic or paper bag and the fumes inhaled. Another preferred method of administration is to soak a rag or handkerchief with the agent and to inhale through the cloth, using the nose and the mouth "huffing". Liquids, such as industrial solvents, frequently are inhaled directly from a container. Aerosolized products may be sprayed into a bag or passed through a cloth to separate the particular contents from the gas. Less commonly, the substances may be inhaled over a heated pan to increase vaporization.

Clinical Symptoms:

The acutal pharmacology of most of these agents presently is unknown. The changes in consciousness are analogous to the levels induced by progressive anesthesia. The first stage is characterized by excitation. The subjective effects are those of euphoria

and exhilaration. Sneezing, coughing and silvation are common. Nausea and vomiting frequently occur during this first stage. As the inhalation progresses, CNS depression becomes more evident. The patient becomes confused and disoriented. There is a generalized loss of inhibitions, which frequently leads to impulsive behavior and subsequent trauma. Many users experience a sense of invulnerability (Wyse, 1973).

Nearly all of the commonly used agents are able to induce these first two levels of changes. As hinalation continues, CNS depression becomes more marked, with a further reduction in corrdination. The user becomes ataxic, and reflexes are depressed. A fourth and final stage of CNS depression is reached when stupor develops. Seizures or cardiorespiratory arrest may occur during this final phase (Kulberg, 1986).

SPECIFIC INHALANTS

Toluene:

Toluene (methylbenzene) is a colorless liquid used extensively as a solvent. Most commonly, it is used in glues and adhesives, acrylic paint preparations, paint thinners and automotive products. It has gained widespread use as a replacement for the solvent benzene, which causes bone marrow depression (King et al., 1981).

Many clinical syndromes have been ascribed to both acute and chronic toluene abuse. Acutely, neurologic symptoms predominate. Cronk and others (1985), reported on 19 children aged 8 to 14 years admitted with acute encephalopathy following toluene intoxication. Seven patients had a history of euphoria or hallucination. Four patients presented with coma, three with ataxia and three with convulsions. Thirteen of the children had complete resolution of their symptoms. One child showed persistent cerebellar signs 1 year after his presentation. Five cases were lost to follow up. A case of respiratory arrest following an acute toluene inhalation was reported (Cronk et al., 1985).

Sixteen to twenty per cent of inhaled toluene is eliminated by the lungs unchanged. Approximately 80 per cent of the inhaled dose is oxidized to benzoic acid, then conjugated with glycine. It is eliminated in the urine as hippuric acid. Measurement of urinary excretion of hippuric acid is used as an indicator of the degree of toluene exposure. Blood toluene levels also may be measured. Blood concentrations of toluene may be biphasic. An initial peak is followed by a drop in blood level, which reflects the binding of the substance by the fatty tissues of the body. Following the termination of exposure, a second peak may appear as the toluene is slowly released from the lipid-containing tissues (King et al., 1981).

Gasoline:

The composition of gasoline varies from brand to brand. This variability is a reflection of the origin of the petroleum from which the gasoline is derived, the molecular modifications made during refining and the subsequent additives. Gasoline is primarily a mixture of C_4 - C_{12} aliphatic hydrocarbons. The saturated hydrocarbons from C_4 to C_8 have strong narcotic properties. With sufficient exposure, nausea, ataxia and loss of consciousness may be induced.

Appreciable amounts of other substances such as xylene, toluene, benzene, paraffins and naphthenes are present. These substances may contribute to the inebriation (Fortenberry, 1985).

Gasoline is rapidly absorbed from the lungs, and the desired onset of symptoms is noted within 3 to 5 minutes. Fifteen to twenty breaths of the vapor is sufficient to inebriate for 5 to 6 hours. An inhaled concentration of 1 per cent produces dizziness and drunkenness in about 5 minutes (Poklis and Burkett, 1977).

The major acute and chronic toxicities of gasoline sniffing are neurologic. Ataxia, tremor, myoclonus, and encephalopathy have been reported in chronic users.

Halogenated Hydrocarbons: *MS*

Certain halogenated hydrocarbons are used as solvents, degreasers and spot removers; among the most popular are trichloroethane and trichlorethylene. A group of halogenated hydrocarbons that was used extensively in the past as intoxicants was the freons. Freons were widely employed as aerosol propellants and were among the most commonly abused inhalants in the 1960s. Their use as a propellant in most

products was discontinued in this country after 1968 (Bass, 1970).

Halogenated hydrocarbons produce a significant depression of the cardiovascular system. One mechanism of cardiovascular toxicity involves the sensitization of the heart to circulating catecholamines, which increases to possibility of ventricular tachycardia and fibrillation.

Bass (1970), in his study of 110 "sniffing" deaths, drew attention to a common theme of sudden activity or stress immediately preceding death in several halogenated hydrocarbon inhalations. Trichloroethane and fluorinated hydrocarbons were the most commonly implicated inhalants. Another potential cardiovascular toxicity is that of decreased myocardial contractivity, which results in decreased cardiac output, decreased coronary blood flow and adrenal release of catecholamines. The increased levels of circulating catecholamines are able to induce arrhythmias in the previously sensitized heart.

Nitrous Oxide:

Nitrous oxide is another widely available potential inhalant. It is used commercially as a propellant for whipping cream and as a power booster for automobiles and motorcycles. Like the other inhalants, nitrous

oxide frequently produces a "floating" sensation and euphoria. Visual hallucinations also may occur. Heavy exposures may produce coma, respiratory depression and seizures. Hypoxic brain damage is a real possibility when this agent is inhaled without supplemental oxygen.

Nitrities:

The alkyl nitrites (amyl, n-butyl and isobutyl) have become very popular recently as orgasm enhancers. They are widely available and sold in "head shops" under various trademarks as room deodorants and "liquid incense".

The nitrities are potent smooth muscle relaxants. The giddiness, dizziness and syncope induced by these agents in thought to represent a spectrum of cerebral ischemia caused by vasodilation. The perceived enhancement of the orgasmic experience is also believed to be the result of vasodilation of penile blood vessels (Benowitz, 1983).

The major toxicities of nitrite inhalation result primarily from vasodilation and the formation of methemoglobin. The vasodilation may cause orthostatic syncope. The induced methemoglobinemia may be sufficient to cause tissue hypoxia (Benowitz, 1983).

TOBACCO AND SMOKING

Smoking is the chief avoidable cause of death in our society and most important public health issue of our time. If all smoking were eliminated from United States, there would be 25 per cent fewer infants born with low birth-weights, 33 per cent less heart diseases, 41 per cent fewer childhood deaths between 1 month and 5 years of age, 50 per cent less bladder cancer, 85 per cent less chronic obstructive pulmonary disease and 90 per cent less lung cancer (Loeb et al., 1984).

Each year 350,000 Americans die prematurely as a result of smoking tobacco (Fielding, 1985).

Although 90 percent of adolescents are aware that smoking is a health hazard, few believe it is a threat to their health. Since most adolescents believe that they can stop smoking whenever they wish, chronic disease are not seen as a threat.

Renington (1985), reported that white women under age 25 years have particularly high rates of smoking (41 per cent in a recent survey).

The social and behavioral correlates of teen age smoking are of greater concern than immediate physical consequences. Smoking in early adolescence

is a strong predictor of more dangerous behavior in late adolescence: alcohol abuse, promiscuity and reckless driving (Kandel, 1975).

Because smoking by adolescent is illegal they may use it as an emblem of defiance. The persons who experiment with drugs and drinking at 18 are often the same individuals when were experimenting with cigarettes at 12 (Perry, 1985).

Addictiveness of Nicotine:

Young smokers often enter adulthood with a tenacious and dangerous habit. In fact, "habit" may not be the correct word; "dependence" and "addiction" are the terms used by many researchers. Russell (1974), from the Maudsley Hospital in London, argues that nicotine is one of the most addictive substances known to humanity.

Why is tobacco so attractive that its use spread despite penalties and persists despite well-publicized disease consequence?. Nicotine seems to be a useful psychological tool.

Pomerleau (1984), stated that it increases pain threshold and pain tolerance. It reduces the craving for sweets and reduces total calorie intake. It increases performance on tasks demanding alertness and yet also reduces anxiety (Gilbert, 1979).

The biochemical basis of these effects have become more clear. Nicotine appears to release endogenous opioids; naloxone blunts the pleasure of smoking and reduces how much one smokes. Nicotine's appetite suppression may be due to hormone release. Nicotine stimulates the release of growth hormone, cortisol and arginine vasopressin. Nicotine may be capable of acting as both a stimulant and a sedative because it is an antagonist of acetylcholine.

At low doses, nicotine stimulates central acetylcholine receptors. At high doses, nicotine's slow turnover causes saturation of these receptors and blocks further stimulation by endogenous nerve impulses. Thus, longed shallow puffing of a cigarette will sedate, while deep, high-dose drags of a cigarette will act as a stimulant (Ashton et al., 1979).

The ability of nicotine to stimulate and to alter somatic responses such as pain tolerance and appetite makes it useful in many situations. One would expect such a functional drug to induce powerful cravings.

Smoking may be an unusually gratifying method of self-administering nicotine. Nicotine arrives cerebral circulation 7.5 seconds after inhalation of cigarette smoke. By contrast, intravenous drugs

require almost twice as long to arrive brain. This remarkably rapid onset of action increases the drug's reinforcement of nicotine use and allows precise titration of the biphasic stimulating-sedating effects (Russell, 1980).

Tobacco use, like other addictions, exhibits rapid development of dependency, loss of control over use and high relapse rates after cessation. Eighty-five per cent of teenagers who smoke two or more cigarettes completely will become regular smokers. The successful quitter has failed on multiple previous quit attempts.

Ninety per cent of current smokers have tried to quit but failed or would like to quit if it were easy. Even after the terrifying experience of a heart attack, 70 per cent of smokers are unable to quit.

All cessation techniques are plagued by high relapse rates, often 75 per cent in the first year. Inability to regulate behavior, despite contrary desires or significant deleterious consequences, is the core of addiction. By this criterion tobacco use certainly is an addiction (McKenna and Thomas, 1974).

Smokeless Tobacco:

Cigarette smoking is no longer the only use of tobacco that has public health significance. In the last ten years, smokeless tobacco-snuff, schewing tobacco have undergone a remarkable resurgence of use. In the early 1970s, however, tobacco manufacturers launched a campaign to promote smokeless tobacco. This advertising is not limited by legal restrictions (as is cigarette advertising) and appears in all media including TV and features celebrities popular with adolescents.

In USA this marketing campaign has been dramatically effective. Current estimates show that 3 million American teenagers use smokeless tobacco. The sales of smokeless tobacco have increased by 11 percent per year since 1974. Surveys conducted in many different states document use as early as third grade (Glover, 1986).

The use of chewing tobacco among girls and young women is a negligible. The recent phenomenon of women under 25 smoking more than men may be due to smokeless tobacco use by adolescent males.

A recent article shows that total prevalence of tobacco usage among 14-to 15 years-old men increased from 56.1 percent to 60.2 percent between 1976 and

1981, even though the prevalence of cigarette smoking declined from 32.2 percent to 16.8 percent (Hunter et al., 1986).

This resurgence of smokeless tobacco use is an atavism. Snuff and chewing tobacco were popular forms of tobacco in 19th century America. In the 1880s, Koch's germ theory of disease drew attention to chewing tobacco use as a source of contagion, especially for tuberculosis.

Although smokeless tobacco is implicitly marketed as a safe alternative to cigarettes, it is definitely not risk free. Users of smokeless tobacco expose their oral cavities to potent carcinogens such as polonium, polycyclic aromatic hydrocarbons and nitrosamines. Smokeless tobacco also differs from cigarettes in the duration and intensity of exposure. While smokers actively inhale smoke for less than 100 minutes per day, the average duration that a user of chewing tobacco has a "chaw" in this mouth is 8½ hours, and many use it 24 hours a day. In addition, chewers typically find a favorite location in their mouths to hold the "chaw" and thereby focus the pathogenic insult. Oral cancer, leukoplakia, complications of gum recession, caries and elevated

blood pressure are known as suspected health consequences of smokeless tobacco. The most serious and the best demonstrated consequence is oral cancer (McGuirt, 1983).

Leukoplakia, a precancerous lesion that progresses to verrucous carcinoma in 3 to 5 percent of the cases, is commonly found among adolescent smokeless tobacco users. Smokeless tobacco use also is associated with significant periodontal problems. Gum recession is a common sequela. This is probably due to the high abrasiveness of chewing tobacco (Going et al., 1980).

The sodium content of smokeless tobacco is also of medical significance. Many brands contain more than 1000 mg of sodium and consumption of several of these containers in a day is not unusual. Perhaps as a result users of smokeless tobacco have higher blood pressures.

A recent study of 18 to 25 year old men documented that the average blood pressure of nonusers was 131.6/72.8 compared to 143.7/80.7 among the users of smokeless tobacco. This difference (12.1/7.9) was highly statistically significant ($P < 0.01$) (Schroeder and Chen, 1985).

Tobacco Use A Pediatric Health Problem:

Tobacco use is a behavioral epidemic that causes enormous suffering. For tobacco use, prevention means deterring initiation of use. Because most users acquire the habit in their early teens and because people who do not become regular smokers in adolescence rarely adopt the habit later in life, prevention is ultimately a pediatric problem (Best et al., 1984).

Infants born to mothers who smoke during pregnancy are shorter, weight less and are more likely to perish in the neonatal period. The classic study was published in 1957 by Simpson who showed a 330-gm weight and 18 percent mortality disadvantage for smokers babies. This impairment shows a strong dose-response relationship: greater gestational smoking is associated with more severe developmental impairment and higher mortality. Indeed cigarette smoking is the single most powerful determinant of poor fetal growth in the developed world. "Fetal Tobacco Syndrome" be applied to neonates weighing less than 2500 grams at birth who are born to smoking mothers and for whom no other causes of growth retardation can be identified (Nieberg et al., 1985).

The risk from passive smoking continues after delivery. Infants whose parents smoke are at 1.8 times greater risk of SIDS. They have significantly more admissions for pneumonia (2.9 times), sinusitis (1.5 times), eczema/urticaria (4.7 times) and skin infections (2.0 times). In addition they suffer from more severe illnesses: The mean duration of hospital stay for smokers' children was 26 percent longer than the stay for nonsmokers' children and the length of hospitalization was directly related to the amount of parental smoking (Rantakallio, 1978).

Childhood smoke exposure impairs physical and mental development. Butler and Goldstein (1973), from England compared children of smokers to children of nonsmokers at 11 years of age. Children of smoking mothers were 1.0 cm shorter than the children of nonsmokers and were delayed by 4 months in reading comprehension and 5 months in mathematical ability (both $P < 0.001$). These results were controlled for confounding and demonstrated a dose-response relationship. Rantakallio and her co-workers in Finland (1983), confirmed these findings. At the age of 14 years, children whose mothers smoked more than ten cigarettes a day were 0.9 cm shorter.

Whereas passive smoking is the concern in childhood, in adolescence the primary issue is the onset of active smoking. It is precisely during this transition that inducements to smoking are greatest and lifelong patterns are initiated. Understanding why adolescents begin to smoke is critical to prevention. A dramatic shift in theories about adolescent smoking occurred in the 1970's. Instead of labeling it as a deviant behavior and leaving it at that, investigators tried to discover what motivates adolescents to adopt tobacco use. Extensive etiologic research provided the basis for identifying psychosocial risk factors (that is, environmental, personal and behavioral factors that are associated with the onset of smoking).

FAMILY FACTORS IN CHEMICAL DEPENDENCY

The nature of chemical dependency itself requires family work. Viewing chemical dependency as a truly compulsive use of mood-altering substances over which one has no predictable control classifies it as a disease onrity (Wegscheider, 1981).

Adolescents by themselves are difficult to communicate with. Part of this difficulty is resistance and awardness part of it is lack of insight. They simply do not know the "why's" behind their chemical use. Since their ability for abstract resoning is not yet well developed, they are less able to benefit from cause effect or insightoriched therapy (Bowden and Burstein, 1974). Because treating adolescents is difficult, clinicians need all the help they can get. They can best get that help from other family members, particulary parents. Chemically dependent adolescents run a high statistical risk of having an actively aledrolic parent. Treatment of a adolescent within a family content often uncovers parental chemical dependency.

Family treatments has the clearest implications for prevention (Stanton, 1980).

It is worthwhile to note that a family systems approach drug abuse treatment has historical context in three areas: 1) the evolution of the drug sense itself, 2) the developing field of family therapy, and 3) the emergence of family therapy as applied to the drug abuse field (Hubertz, 1983).

Olson and colleagues (1980), stated that growth of family therapy has attracted professionals interested in working with persons within a relationship context and has become a "melting pot" of therapists.

It is in this past decade that there have been sophisticated developments in theory and research as well as excellent description of case material illustrating the family as total system in the genesis and maintenance of chemical dependency (Coleman, 1980).

As a result, a growing number of psychotherapists are addressing the issue of the family's role in supporting a family member's continued use of mood-altering substances. This shift to a family system's view of chemical dependency both parallels and reflects the more generic growth of marital and family treatment. It is emerging and separate mental health fields in which the underlying characteristic and

hallmark of the field is the emphasis on treating problems in a relationship context (Olson et al., 1980).

In the family unit, each member affects and is affected by every other member of the system. What one person says or does is a stimulus to which another responds and that response in turn becomes a stimulus evoking a more response. This pattern of circular causality is more descriptive of what really happens when individuals interact, particularly within a system as stable as a family unit (Olson, 1974).

Studies of families whose adolescents rarely or never use drugs show the following characteristics:

- 1- The offspring perceive more love from both parents, particularly their father.
- 2- They function more democratically with shared authority and better communication.
- 3- Low-risk families also manifest a "benevolent dictatorship" structure with diversity of self-expression and adherence to sex roles. They also show religious involvement, more emphasis on childrearing, discipline. Self-control and less allowance of freedom for children.
- 4- There is an emphasis on family cohesion and togetherness and a greater ability to plan and have fun together.

- 5- An important variable is their sense of family tradition that the family had existed over generations and that engenders loyalty to family standards.
- 6- Parents of these families have more influence, than peers on their offsprings.
- 7- There is less discrepancy between how the parents would ideally like their children to be versus how they actually perceive, them, and their children are seen as more assertive (Alexander, 1977).

Ellis (1984), suggests that there has been greater use of parents as participants in outpatient therapy programs than in inpatient treatment. Not only can parents be a useful source of information and data in the diagnosis, they can also be helpful in the therapy once they understand the disease process of chemical dependency, improve communication skills and understand adolescent development stages.

Huberty (1984), takes an advocate position to primarily treating the parents and their marriage relationship. Parents feel guilty, and they need the hope and support comes from encouragement of the pediatrician. They blame each other as well as themselves. The pediatrician role to play down guilt

and support parents to help them believe that in raising their children, they did the best they could at the time.

Being able to share feelings of disappointment, frustration and failure allows parents to discover the normacy of their feelings and problems. They need to be reassured that the anger and the love that they feel toward their adolescent and toward each other is acceptable.

Through such support networks, they are able to feel understood and are increasingly able to regain respect for themselves and for each other. Initial referral and encouragement from the authority of the pediatrician may go a long way to provide disaction support and self-esteem.

Environmental Risk Factors in Smoking:

Multiple factors in the social environment have been identified that influence the onset of smoking. Among these, parental and peer factors are strongly associated with adolescent cigarette use.

Parental influences include the direct modeling of smoking or nonsmoking behavior, approval or disapproval of smoking and direct support or hindrance

of the child's use. Parental attitudes are particularly important if they are consistent with parental behavior. The influence of parental cigarette use is detectable even among early elementary school students. First graders whose parents smoke rank smoking as a more acceptable, positive habit (Brandt, 1982).

Children see their parents smoke as a way to deal with stress or boredom, or a way to socialize or complete a meal. Children learn the utility of smoking as well as its acceptability from smoking parents. Parental smoking facilitates experimentation through access to cigarettes that can be pilfered easily. As a result of these influences, in families in which both parents smoke, 13.5 percent of the boys and 15.1 percent of the girls are also smokers, compared to 5.6 percent and 6.5 percent if neither parent smokes. Parental smoking is second only to peer influence as a predictor of adolescent smoking.

Even though parental factors substantially alter a child's risk of becoming a smoker, peer influences appear to be the most potent factors in precipitating the onset of smoking. Over 50 per cent of adolescents report smoking their first cigarette with a friend, whereas only 13 percent report smoking

their first cigarette along. The nature of peer influence is both direct and indirect (Friedman et al., 1983).

Although male adolescents are more likely to encounter overt peer pressures to smoke, indirect pressures may be more influential for both genders. For example, adolescents who enter a group of smokers feel that they should also smoke, even when no direct offer of cigarettes is made. Training in social skills to recognize and resist peer pressure to smoke shows promise in lowering eventual use.

A social environment that is tolerant of smoking facilitates the adoption of smoking. As the total number of smokers in the child's environment increases, the relative risk of becoming a smoker also escalates. Older siblings who smoke are critical members of the social environment, particularly if the parents smoke.

Research has defined several personality traits that predict smoking onset. Two factors appear repeatedly. The first involves knowledge, attitudes and beliefs concerning cigarette smoking. Adolescent smokers demonstrate less knowledge about the negative consequences of smoking, hold more favorable attitudes toward smoking, have more distorted beliefs about the prevalence of smoking, discount the addictiveness

of tobacco and minimize the risks of experimental smoking adolescents indicate that smoking is not harmful if one quits before it becomes habitual.

Most adolescents believe, moreover, that if they begin to smoke they will be able to stop whenever they want. Although most teenagers believe that long-term smoking is a health hazard, their own smoking is felt to be unrelated to the chronic habit of adults. Challenging this "sense of invulnerability" by connecting smoking with immediate being rebellious (Evans, 1976).

Behavioral Risk Factors in Smoking:

Cigarette smoking is consistently related to low academic goals and poor school achievement as well as antisocial behavior in general. Early forms of antisocial behavior in childhood (e.g., lying, hitting or disobedience) mature into delinquent behavior in some children. These behaviors identify children at risk of problem behavior in late adolescence.

The environmental, personal and behavioral factors identified previously can be considered psychosocial risk factors because they predict the onset of smoking. The questions of prevention, and of

how to reduce adolescent smoking, translate into modification of these risk factors. This requires an array of strategies designed to counterbalance the strong, pervasive influences to smoke (Sanders et al., 1987).

Inheritance of Alcohol Abuse:

The studies of Cloninger and Bohman 1981 provide strong evidence that biologic inheritance can be a major factor in the development of an alcohol abuse disorder. Specific combinations of predisposing genetic factors and environmental stressors appear to interact before alcohol abuse develops in most persons.

Milieu-Limited Alcoholism is the most common type of genetically influenced alcoholism and it occurs in both men and women. This type of alcohol abuse requires both a genetic predisposition and certain environmental stressors.

Male Limited Alcoholism is a severe type as hereditary predisposition found only in men. This type of alcoholism is found in 25 percent of all male alcoholic subjects in the general population and is unaffected by the environment. Male-limited alcoholism is often accompanied by serious encounters with the law and is associated with episodes of extensive treatment.

Swedish studies showed that there are many cases of sporadic or nonfamilial alcoholism and that many alcoholics do not have a parent with an alcohol abuse disorder. This could be genetically predisposed to alcoholism yet not develop the disease because his or her exposure to alcohol may have been limited by sociocultural factors.

Attempts have been made to identify biologic markers that could predict a person's risk of developing alcoholism. These have varied from analysis of isoenzymes of aldehyde dehydrogenase to phenotypic expression such as gait way.

Developmental Perspectives in Alcoholism:

Adolescents with alcohol and drug problems have been described as being in a state of "developmental arrest (Macdonald, 1984).

Donovan and Jessol have suggested that adolescent drinking becomes a problem behavior when the alcohol abuse interferes with the normal developmental tasks of the adolescent. Every adolescent encounters a number of psychological, social, cognitive and moral growth tasks prior to becoming a well-adjusted adult (Felice, 1983).

These developmental tasks are not unique to the period of adolescence but are in fact extensions of the development missions of earlier childhood (Levine, 1983).

Problem drinking is rare in the preadolescent years but recently has been reported in several children as young as 11 years of age (Famuloro et al., 1985).

Normal cognitive changes that occur during adolescence can contribute to the development of problematic behavior (Baumrind and Moselle, 1985).

- 1- The transition of thought processes from concrete to formal operations allows the adolescent to think in more abstract terms and may lead to the rejection of adult values.
- 2- A change from "conventional" to "principled" morality can result in the development of nonadaptive risk-taking behavior.
- 3- The shift in relative importance of parents and peer group can have adverse effects on the socialization process.
- 4- The ability to learn how to handle the psychological inequilibrium that occurs during normal adolescence may, in the presence of poor role models, lead to maladaptive "escape" behavior.

Psychological Factors In Alcoholism:

Several studies have been done that attempt to describe components of an "alcoholic personality". Many of these studies are retrospective and therefore it is not always clear whether the personality traits are the cause or the result of the problem drinking behavior. Some objectives used to describe adolescent drinkers include rebellious, "tough" precocious, and impulsive. These teenagers have also been described as having low self-esteem, poor hostility control and low tolerance for frustration, anxiety, and depressive feedlign (Hortocallis, 1984).

It has been concluded from some prospective studies that alcoholism is not predictable by specific personality types and therefore the concept of the "alcoholic personality" remains controersial (Bearoslee and Vaillant, 1984).

Other research has examined the relationship between adolescent alcohol abuse and the prevalence of psychiatric disorders such as attention deficit, antisocial personality and depressive disorders. In a follow-up stuy of adolescent psychiatric inpatients, 1 year after discharge 21 percent reported daily alcohol use and only 6 percent reported being abstinent. It has been proposed that a history of

childhood attention deficit disorder may be predictive of future problem drinking, and prospective studies are currently being done to test this hypothesis (Knop et al., 1985).

The reported relationship between affective disorder and problem drinking may be explained by both environmental and genetic factors (Kaplan et al., 1984).

In one recent study of serious delinquents, alcohol and substance abuse were found to be the most common psychiatric diagnoses, occurring in 63 percent of the study population (McManus et al., 1984).

Numerous other studies have suggested an association between antisocial or delinquent behavior and alcohol abuse (Grande et al., 1984).

Some have suggested that criminal or delinquent acts may be a direct consequence of alcohol use. There are reports of crimes being committed by both juveniles and young adults while under the influence of alcohol and other chemicals (Bennett and Wright, 1984).

Stabenau has reported that persons with antisocial tendencies tend to have an earlier onset of abusive alcohol use.

It was reported that the connection between drug abuse and deviant behavior may be best explained by an "interpersonal" theory in which rejection by either parents or peers leads to loss of self-esteem, which then leads to a search for acceptance and possible identification with deviant groups in the social environment.

Adolescents also may use alcohol as a type of self-medication to reduce discomfort associated with feelings of loneliness, hopelessness, anxiety and rejection and symptoms psychiatric disorders. The uncomfortable feelings and situations that lead to self-medication may also become conditioned stimuli for drinking behavior. Recent research has shown there to be measurable physiologic responses to drinking-related cues in both chronic alcoholics and social drinkers (Newlin, 1985).

Factors Contributing to Alcohol Use/Abuse:

Family:

Problem drinking by adolescents is most likely to occur when both parents are heavy drinkers or strict abstainers. In either case, the parents have not modeled appropriate and controlled use. Problem drinking by the young is also likely when there is

conflict between parents or marked discrepancy between parental expressed attitudes and observed behaviors. Children as young as 6 years have attitudes about alcohol and knowledge of its use, clearly learned from the family. The home is the primary source of alcohol for the young adolescent. In Egypt, in some families of high socioeconomic levels the father is the model of his early adolescent and gives him the idea of drinking alcohols in parties and with friends. The boy is affected by his father more than the girl. Then he begins to drink alcohol far from his father to feel that he becomes mature.

Peers:

During adolescence, drinking behavior, began within the family is reinforced by peers. It may be that alcohol-using adolescents seek out a peer group with similar attitudes and behaviors. In U.S.A. In 1984, 30% of high school seniors reported that most of their friends got drunk at least once a week (Johnston et al., 1985). Drinking is more likely to occur outside the home and with peers than within the family setting. Like Adults, teenagers may use alcohol to reduce social inhibitions and to accompany sexual activity (Hankins, 1982).

Social Factors In Alcoholism:

The earliest influences on the socialization process of a child are cultural and parental attitudes and beliefs. The reported cultural differences in alcohol use are best explained by social learning theory, "drunken" and "sober" roles are learned, depending on the prevalent attitudes and norms in a society.

Heath (1985), has suggested that inconsistent guidelines about drinking behavior and an abrupt discontinuity between childhood and adult expectations may contribute to the abuse of alcohol in American adolescents.

Early experiences with drinking during adolescence often take place within the family. The relative importance of parental and peer influence on the development of problem drinking is currently being debated parental influences are probably more important in the socialization process during early and middle childhood, whereas peer influences become more important during adolescence (Zucker, 1979).

The teenager in search of an identity may adopt the faulty coping behaviors of his or her parents (Lowman, 1982).

Parental attitudes about alcohol and an adolescent's perception of those attitudes are both important influences on growing teenager (Jarter, 1983).

The alcoholic parent is unable to establish a loving and caring relationship with the child. Such inability to establish a stable identification with the parent results in confusion and uncertainty on the part of the child and may manifest itself as problematic behaviors in the child (Hessy and Howell, 1985).

Peer relationships also have a significant effect on the development and maintenance of alcohol abuse. Peer influences are not felt to be as important in the initiation of alcohol use as they are in the initiation of other chemical abuse (Kandel, 1985).

The maintenance of alcohol use, however, is strongly influenced by peer attitudes and behavior. Adolescents tend to select peers with attitudes similar to their own and through socialization influence one another by continued contact (Chassin et al., 1985).

Socioeconomic status and the media also play an important role in the socialization process of teenagers and therefore influence attitudes and beliefs about alcohol use (McKirnan, 1984).

Alcohol use permeates western society. In contrast to cigarettes, which have not been advertised on the broadcast media for a decade and smoking which is no longer commonly seen on television, dramas and soap operas. Drinking is often associated with images of sophistication and is presented as a natural part of life, fun and without serious consequence.

Drinking by youth is often experimentation with that is perceived as normal adult behavior in a family and a society that accepts social use of alcohol. Teenagers report that they drink for enjoyment for peer acceptance, to forget problems or to reduce tension in their lives. Not all drinking by adolescents is hazardous. However, adolescents may be at increased risk of harm because their limited experience with alcohol and/or smaller body size leads to faster intoxication with smaller amounts of alcohol. They may be less able to recognize and compensate for the neuropsychiatric effects due to biologic, cognitive and psychologic immaturity. Adolescents with poor self-esteem, those who are alienated from peers, or even those who are depressed may use alcohol in an attempt to cope with their psychologic distress.

Beer is advertised commonly, many times as a sponsor of athletic events. Beer accounts for 40% of all alcohol consumed by the young. The media message to youth seems to be that alcoholic beverages are essential to social acceptance, of minimal harm to health and deserved and expected at the end of a normal day's work, for any accomplishment such as a sports victory, or even for any veloxingmoment (Singer, 1985).

PREVENTION OF ADOLESCENT CHEMICAL DEPENDENCY

Successful prevention of adolescent chemical dependency requires a clear understanding of the drug dependence syndrome and of the adolescent stage of the human life-cycle as both are experienced in contemporary North America. Attempts to prevent dependence on drugs and alcohol that are not founded on this basic understanding not only produce frustration and controversy, but they are bound to fail. The tragic and unprecedented epidemic of adolescent chemical dependency experienced in North America in recent years bears powerful witness to the failure of earlier approaches for management of adolescents and their families (Botvin, 1983).

The decline of adolescent health over the last 20 years has been without precedent in North America, where we had become accustomed to progressively more positive health statistics from one decade to the next for all segments of our population. The decline in teenage health over this period was a single phenomenon including such apparently unrelated problems as accidents, suicide and homicide the leading causes of death in the 15- to 24-year-old age group. Also showing recent rises were delinquency, venereal

disease, teenage pregnancy and the three common eating disorders: obesity, bulimia and anorexia nervosa.

Mirroring these rising rates were falls in such positive indicators as performance on standardized achievement tests and physical fitness tests.

Any attempt to prevent adolescent chemical dependency must recognize that the epidemic rise of drug problems was part of an overall deterioration in adolescent health. Without this larger perspective, drug abuse prevention programs will fail.

All the problem behaviors of youth have a common thread: They are pleasure driven, impulsive and socially disapproved behaviors. The apparently unrelated problems share these core characteristics.

Efforts to prevent teenage drug problems must begin with an understanding of the nature and the evolution of this problem in our communities. Problems such as drug and alcohol use, as well as delinquency and venereal disease, were not new in the last two decades. The biology of adolescence did not change in recent years. What was new, quite simply, was the stunning decline in social control exercised over adolescent behavior by adults (Dulont, 1985).

Prevention of chemical dependency is a goal that commands universal support. Perhaps this is so at least in part because prevention means almost anything good to almost everyone concerned about drug problems. There are few, if any efforts in the drug field that do not aim to prevent drug problems. Prevention can be defined in conventional public health terms: primary prevention, or preventing drug use before it begins; secondary prevention, or stopping the progression of drug dependence once it has begun and tertiary prevention, or stopping the worst consequence of continuing drug use.

An example of a primary prevention program is a school-based antimarijuana educational lecture to sixth graders. It attempts to provide information that will stop marijuana use before it begins. An example of secondary prevention is a parent-peer group that unites parents of teenagers who have drug problems in their efforts to stop the drug use. An example of tertiary prevention is teaching heroin addicts to use clean needles to inject their drug so that they do not get AIDS or hepatitis.

This outline hardly scratches the surface of chemical dependency prevention ideas, however, efforts to reduce the supply of drugs have a clearly preventive

aim. Laws against drug use and sale aim to prevent drug use. Treatment of drug-dependent people is an attempt at prevention at all three levels. Treatment attempts to prevent complications of drug use (e.g., by helping drug users get jobs). It attempts to stop drug use by the user completely, and it attempts to prevent the user from spreading his or her drug-using behaviors to others, much the way a person with influenza spreads infection (Dupont, 1977).

Three major primary prevention approaches were tried. The first was the use of the mass media to convey antidrug information. This effort took a hard line, pounding away at the dangers of drug use. The underlying assumption was that drug users simply did not know that drug use was unhealthy. The prodrug counteroffensive of that raised serious questions about the "credibility" of what was widely called "reefer madness" information. It was based on the belief that positive values such as love and tolerance, especially in families, could prevent drug problems. In this campaign not only were the dangers of drug use not emphasized, but drugs were not even mentioned (Saodap, 1974).

The second approach to drug abuse prevention lay in the schools, where much effort was given to educational efforts to provide balanced and credible drug information. Unlike the earlier media campaigns, which were rejected without serious evaluation, many of the second generation school-based drug education programs were evaluated. It was found that students did learn about drugs from those education efforts in that they know more facts about drugs, but there was no consistent antidrug effect in attitude and no reduction in actual drug use as a result of these programs. It was argued that at least some children exposed to these more advanced educational programs had previously decided not to use drugs because they were afraid of the drugs; however, these fears often were based on misinformation. Once the students were "better educated" by the school drug education programs, their anxieties dropped and they were more willing to use drugs (Smart and Fejer, 1974).

This dismal outcome of school-based drug information, matching the discouraging experience with the mass media education, led to a similar shift away from drugs-specific education toward more generic education approaches, often labeled "affective education" and "alternatives to drugs". Although these

program may be beneficial in some ways, the concept today is that the non-drug-specific education efforts do not prevent the onset or the progression of drug use by youth.

One clearly positive idea did emerge from these early prevention approaches. It came from the smoking prevention efforts in school that combined information, especially about the short-term negative effects of smoking (e.g., bad breath, social ostracism) with skill training about how to say "no" to offers of cigarettes in realistic social settings. These programs also supported teenage peer pressure to reject smoking behavior. One study, a program called "Life Skills Training" (LST), taught sixth and seventh graders smoking resistance and other social skills. The program, evaluated year later, reduced by 50 percent the number of students who smoked cigarettes compared to controls who did not receive the LST training after a booster session the next year, the LST group showed an 87 percent drop in cigarette smoking compared to control students who did not receive the training. In later studies of this model, various alternatives are being studied, including using peers as leaders of the sessions and targeting alcohol and marijuana use, as well as cigarette smoking. Positive peer

pressure strategies are now developing in a well researched effort that is producing encouraging results (Durell and Bukoski, 1984).

A new generation of school-based drug education materials is now being developed. These are designed to give clear, unambiguous messages that drug use is unhealthy, unacceptable, and dangerous. They are the companion to school-based antidrug action programs. The education is the explanation and the justification for efforts to keep schools drug free. Positive, nondrug peer pressure is the key to these efforts (Hawley, 1984).

ROLE OF THE PEDIATRICIAN

Pediatricians have a very important role and responsibility in dealing with reversing what has become an epidemic of adolescent drug abuse.

Before pediatricians can become involved in prevention, however, they should be aware of the frequency of drug use among teens, it is highly likely that almost every pediatrician's office in the country is seeing many drug users, more than a few abusers and some who are dependent. Drug abuse is a problem that affects children all across the country, in all socioeconomic classes.

Pediatricians should understand the nature of chemical dependency and understand that is a primary disease process that is chronic, contagious and progressive. Dependency causes serious problems not only for the involved youngster, but for the family and society as well. Pediatricians should be aware that these substances can be highly addictive and that experimentation with tobacco and alcohol, even in the strongest willed adolescent, can lead to dependency. Moreover, physicians who recognize the early signs of drug involvement will be better prepared

to intervene in the early stages of this progressive disease.

Families usually welcome and will accept suggestions related to parenting and child rearing. At a prenatal visit, the pediatrician should advise future parents of the dangers tobacco alcohol and drug use present during pregnancy. Anticipatory guidance should aim at advising parents on the techniques of raising children with a good self-image, able to cope with stressful situations and capable of mature and independent function.

In addition to regular health maintenance visits for children, the pediatrician may encourage family meetings for transitional periods in a child's development (e.g., the beginning of adolescence, or entry into junior or senior high school) during which the child is at high risk for initiation into drug or alcohol abuse.

The pediatrician's responsibilities include acting as the voice of awareness in a community. School, parent, and community groups may ask a physician for assistance and information by asking him to give lectures, serve on committees, or make statements about drug abuse. His support and participation in local efforts can be a strong, positive influence on the community, families and young people.

Pediatricians can assist families, churches and community agencies, as well as school personnel, in developing alcohol education programs for the young. They may teach about the medical complications and physiologic effects of alcohol or share information about the developmental aspects of childhood and adolescence that supports a ban. Pediatricians should work with other professionals and concerned parents to persuade the broadcast media to eliminate or at least modify the portrayal of alcohol use as a safe and normal part of every adult's life, both in regular programming and in commercials.

Pediatricians can encourage adults to provide responsible modeling of controlled alcohol use, including the option of nonuse, in social settings, especially where children are present age of 21 years, a society prohibit any drinking of alcohol by anyone younger than the legal age. In the presence of strong risk factors for problem drinking or even alcoholism, it may be appropriate to recommend by that parents prohibit and that adolescents avoid alcohol use. Unfortunately, high-risk families and adolescents are least likely to follow such recommendations. When problem drinking is discovered, the pediatrician must be prepared to counsel the family about the

consequences and to make referrals for appropriate treatment.

Children see physicians as powerful experts and role models for health behavior. Physician's statements are interpreted as fact; they provide evidence for or against particular habits. It is important for pediatricians to counter are generally not at immediate risk to start smoking, they should receive a framework of knowledge and attitudes to inoculate them against later pressures to smoke. Five strategies are suggested:

- 1- Provide information about the harmful health consequence of smoking, such as cancer, emphysema and heart disease children are concerned about bodily integrity and are swayed by health effects on vital organs.

- 2- Correct mistaken notions about the percentage of adults who smoke and their attitudes toward smoking. Inform children that only one in three adults smoke, that the most successful people in our society are also the most likely to be nonsmokers and that almost every adult smoker would like to quite.

- 3- Emphasize that not starting to smoke is the best way to avoid becoming a regular smoker. Most children and young adolescents do not want to be regular smokers, even if they are already experimenting. Experimentation with tobacco is common during late childhood; informing children of the addictiveness of smoking could minimize the risk of that experimentation.
- 4- Analyze smoking advertisements in magazines that appear to adolescents. Point out that only a small warning mentions the harmful effects of smoking. The most popular adolescent cigarettes-marlboro create images of rugged masculinity and lean feminine attractiveness that are very appealing to adolescents. Children can be taught to see the falsity of these images.
- 5- Provide a nonsmoking environment in the office, one without ashtrays and with signs indicating that smoking in a physician's office is unacceptable. Posters from the American Cancer Society's "Smoking is Glamorous" series provide a strong statement. It is nearly impossible to stock a waiting room with magazines without inadvertently promoting tobacco.

The emphasis, then for children is to help them build an armamentarium against smoking but providing concrete evidence of its harmful consequences and addictiveness, by inoculating them against the blandishments of advertising and by modeling an alternative environment in the doctor's office.

INTERVIEWING GUIDELINES FOR THE CLINICAL
EVALUATION OF ADOLESCENT SUBSTANCE ABUSE

Pediatricians who provide care to adolescents must learn how to assess their patients use of alcohol and drugs and how to identify adolescents who use mood altering substance.

Bright et al. (1985), recently summarized why assessment of adolescent substance abuse can be difficult. Compared to adults adolescents have a relatively short history of chemical use and therefore have not always experienced numerous negative consequences from it. There is normative acceptance of excessive levels of alcohol and drug use among groups of substance abusing youth, so that a single adolescent who consumes similar quantities will not consider his use abnormal or deviant familial and social dysfunction that are frequently found as part of a substance abuse problem may have existed prior to the chemical use or may have been caused by the abuse. Finally, most adolescents cognitive skills are not yet fully developed. Self-definition and effective problem solving skills may be limited by the adolescent's cognitive immaturity.

The major goal is to help pediatricians to develop their interviewing skills relevant to assessing adolescent patients for harmful involvement with chemicals. Pediatricians who are sensitive to the issues of substance abuse and who have well-developed interviewing skills should be able to detect youngsters at risk for harmful involvement with chemicals prior to the development of major problems.

All teenagers should be screened for harmful involvement with chemicals as part of health maintenance care. Opportunities for health maintenance for adolescents include examinations for school and camp, preparticipation sports evaluations and pre-employment examinations.

A pediatrician who has known a teenager since childhood should not slip into complacency regarding evaluation of his or her psychosocial status. All teenagers deserve periodic reassessment of their psychosocial development and functioning. Screening for substance use and risk for should be routinely included as part of an adolescent's general psychosocial assessment. Pediatricians also need to screen adolescent patients for substance use and risk for substance abuse when youngsters complain of such symptoms as fatigue, recurrent abdominal pain, chest pain, headaches, chronic coughing, and sore throat (MacDonald, 1984).

INTERVIEWING TECHNIQUES

It is standard practice to interview adolescents in private. Parents also need time with the physician and adolescents also should meet simultaneously with the physician. However, disclosure of psychosocial information by and discussion of sensitive topics with teenagers are most productive when parents are absent from the room.

In general let the teenager know that you are interested to know him or her as a person and that knowledge of his or her life-style will help you to provide better medical care. Adolescents, including substance-adolescents, respond well to physicians who are interested in them and their life-style perspectives.

During the evaluation process, attempt to engage the adolescent as your partner, rather than taken an authoritarian, directive posture. Ask open-ended questions that will encourage actual conversation. Try not to ask questions that can be answered by a simple yes or no. Similarly, try to develop the interview into an exchange of information, rather than just having the teenager provide answers to your questions.

Younger adolescents, angry and hostile adolescents and anxious adolescents are easier to engage if the interviewer is prepared to share information and a rationale for needing certain pieces of information with them. For example, as the interview proceeds, find out what your patient would like to ask or to know about the use of chemicals. For example one could say most teens that I know wonder if smoking.

The interviewer can frequently cut through behavior by describing what is occurring in a warm, empathic way. You seem quite upset (angry, unhappy) about coming here today. I can understand your not wanting to come. Allow the adolescent to respond briefly. Even though you feel that way we have a job to do. Angry adolescents may also use profanity to express themselves or to attempt to cause adult discomfort. Calmly accepting the language by acknowledging its use is appropriate.

Psychosocial Assessment:

A general psychosocial assessment of an adolescent provides the infrastructure for addressing actual chemical use. It helps to answer the questions: That roles do mood-altering substances play in the adolescent's life? Are they present at all? How do they

fit into, influence, or direct the adolescent's life? This assessment provides the specific information that will help the pediatrician to determine whether an adolescent is at risk for abusing chemicals (Anglin, 1987).

The adolescent's relationships with his family members are a key area to explore.

Adolescent-parent conflict is part of the normal developmental process. This conflictual relationship frequently intensifies in families whose adolescent children are abusing substances.

Substance-abusing adolescents frequently have alcoholic parents. Substance-abusing adolescents frequently have alcoholic parents. Familial substance abuse problems can be explored using the following sample questions: "Are you worried about any family members' drinking or drug use" What kinds of difficulties has this use caused for you? The pediatrician should also ask how often each parent becomes intoxicated. If the parents are separated or divorced, did use of alcohol influence this marital outcome?.

Functioning at School:

Assessment of an adolescent's functioning at school is a second fruitful area to explore academic performance, attendance and relationships with school personnel. Comparing academic performance across time is helpful. Adolescents who blame poor grades on teachers who dislike them are alienated from the school community and may be disruptive in class. Teenagers who frequently use substances may be less able to concentrate, either because they are high or because they are suffering from symptoms of withdrawal. Substanceabusing students usually have less motivation to succeed at school (Bachman et al., 1981).

The adolescent's relationship with other teenagers and young adults are the third major area that the pediatrician should explore. Friend's use of alcohol and drugs has been found to be closely associated with an adolescent's own use. The pediatrician therefore needs to explore peer risk factors. Has he or she recently changed his or her circle of friends, losing interest in friends with whom he or she had formerly been close? The pediatrician should also ask about activities that the adolescent enjoys with friends.

It is wise to determine how well the parents know their teenager's friends and their opinions of these friends. How often do you and your parents argue about your friends.

Leisure Activities and Employment:

The physician also needs to explore what activities occupy an adolescent's time when he or she is not in school. What leisure activities does the teenager enjoy? How does he or she relax school clubs, sports teams. Try to find out whether the teenager has changed his or her schedule of extracurricular activities as teenagers become increasingly involved in use of chemicals they tend to quit participation in organized activities. Teenagers who have little or no structured activity or who cannot account for their time may be at higher risk for using chemicals (Greenberger and Steinberg, 1986).

In contrast to popular wisdom, which holds that employment provides a highly constructive and beneficial experience for youth, recent concern has been expressed that adolescents who work long hours under stressful conditions may be at higher risk for use of alcohol and marijuana as a stress reduction strategy. In addition, earned income can give adolescents greater discretionary power to purchase alcohol and drugs.

CHEMICAL USE HISTORY

Order of Interview Process:

Where is the interview process, more specific questions about use of drugs and alcohol should be placed? The interviewer should discuss more general life-style questions prior to asking about use of chemicals. There are two important reasons for this order. The first reason is that the teenager needs time to develop or renew a relationship with the physician prior to being asked to discuss a sensitive subject. The second reason is that the physician will be able to use general psychosocial information as a database to help determine how much at risk an adolescent may actually be for harmful involvement with chemicals. This information will help a physician to determine how deeply he needs to probe in this section of the interview (Johnson et al., 1986).

One strategy to provide order to the interview process is to include specific questions about chemical use as part of a continuum of what the teenager ingests. The physician should start with the least threatening and move to increasingly sensitive substances. The most basic beginning is to ask about dietary patterns,

than to proceed to questions about prescribed medications. Drugs received by legitimate physician prescription are seen as necessary and are socially approved. The next step in this continuum is asking about the teenager's use of over-the-counter (OTC) medicines. Many patients will not think to disclose the use of nonprescription preparations unless specific inquiry is made. OTC medicines that are commonly used by substance-abusing adolescents include products to relieve symptoms of upper respiratory infections and allergic rhinitis, indigestion remedies analgesics, vitamins, weight loss aids, drugs to promote wakefulness, hypnotics and topical eye drops.

The interviewer can then progress to questions about use of actual substances. Use to tobacco products, including cigarettes and smokeless tobacco. Questions about use of tobacco may be considered a mildly sensitive area. Learning about the adolescent's use of alcohol is the next step on the continuum.

Interviewer should ask about the use of other illicit drugs, reviewing major techniques of use as well as classes of drugs. In summary, this organization of the interview provides a natural order of progression, moving from the socially accepted

to the socially tolerated to the socially disapproved to the overtly illegal.

Initial Exploration:

The purpose of initial, exploratory inquiries is to help establish the tone of this section of the interview. During this process, the interviewing pediatrician will be tested by the adolescent patient. If the physician appears to register disapproval, dismay, or condescension in reaction to initial disclosure statements, then it is doubtful that the adolescent will provide accurate information regarding his own use. The physician will have failed teenager's test and will not be deemed trustworthy. In addition, the pediatrician can measure the adolescent's willingness to provide open information during this exploratory phase.

The physician can inquire whether many students at the teenager's school are into drinking or doing drugs. If someone wanted to buy marijuana, how easy would it be? What happens at parties that the teenager has personally attended? This approach is less threatening to adolescents, because it does not ask them to disclose information about their personal involvement with chemicals. However, if a teenager disavows

general knowledge about the prevalence of substance use among adolescents in his or her community, or denies that drinking and drug use exist, the pediatrician will recognize that he or she is not yet trusted.

Elements of Formal Chemical Use History:

The goal of this set of questions is to determine the quality and depth of the relationship that the adolescent has with chemicals. Minimal time is needed to discuss these issues with a teenaged patient who is functioning well and who admits to little or no use of alcohol and drugs. These questions are very useful, however, when the physician needs to explore an adolescent's chemical use more intensively.

When asking an adolescent to discuss his or her personal use of alcohol and drugs, it is less threatening to use a historical perspective. Before addressing current use patterns, find out about the first time the teenager had a drink or the first time you ever had anything to drink. What was the experience like? When was the first time that you ever got really high?.

The pediatrician should gradually move the questions to the present time. It is useful to have the teenager compare usage patterns. About how much

are you drinking now, compared to last fall when school started? In identifying patterns of use, the pediatrician will need to learn how frequently the adolescent uses particular chemicals and how much he or she consumes at a time. How many times did you get high in the last month? Forced multiple choice answers are useful strategy for adolescents who find it difficult to answer spontaneously.

It may be less threatening to determine approximate quantities of chemicals consumed by using the concept of tolerance, rather than asking for this information directly. Increasing tolerance for specific agents is closely associated with more intense use. Tolerance can be addressed historically by determining the relative quantity it takes to get a little high and how much it takes to get really high. Have the teenager compare these amounts to what was necessary to get high six months ago and a year ago.

Learning how a teenager obtains his or her chemicals may not be possible unless a trusting relationship has developed between physician and patient. Youngsters who have become chemically dependent frequently resort to devious and illegal behaviors to obtain supplies, including stealing, dealing and prostituting. It should be obvious that if an

adolescent engages in these types of activities, he or she has a very serious problem.

How can the pediatrician decide whether involvement with chemicals is causing behavioral dysfunction? Chemical dependency is viewed as a progressive disease with four stages. **The first stage** is experimentation. The teenager experiences the positive mood effects associated with chemical use and experiments with chemicals in social settings. Adolescents who progress to **The second stage** actively seek the mood changes affiliated with chemical use. They develop expertise in the use of chemical for mood regulation. These youngsters may purchase their own supplies of drugs and may start to use chemicals more frequently than once a week. Although they do not perceive drugs as causing undesirable consequences, these youngsters may manifest beginning changes in psychosocial functioning. For example, they may use drugs to relax or to relieve stress-induced anxiety. Their school work may start to deteriorate, their relationships with other family members may become riddled with conflict and they may start to associate with other teenagers or young adults who use substances regularly.

The third stage of this conceptual scheme concerns preoccupation with drugs. Adolescents who have slipped into this phase have lost control over the use of chemicals. They believe that drugs are indispensable for coping with stress. These youngsters develop tolerance and frequently use many drugs. Their youngsters develop tolerance and frequently use many drugs. Their major focus is to attain drug-induced euphoria. Psychosocial functioning deteriorates significantly and may include antisocial behavior. The fourth stage is termed "burnout". Young people who have progressed to this final stage have developed a chronic brain syndrome that may be reversible. They use drugs now to prevent negative feelings rather than to seek euphoria. They are no longer able to function productively in society. Young people who reach this stage are usually older adolescents or young adults (Senay, 1983).

**THE CLINICAL UTILITY AND EVALUATION
OF DRUG SCREENING TECHNIQUES**

Specific Laboratory Techniques:

As previously stated, modern analytic technology has made available laboratory techniques that can be used for screening, identification, and confirmation of drugs rapidly, that is, within the time required to be clinically useful. The techniques that are widely used in a toxicology laboratory include enzyme immunoassay technique (EMIT), colorspot tests, thin-layer chromatography (TLC), gas-liquid chromatography (GLC), high performance liquid chromatography (HPLC), and gas chromatography-mass spectrometry (GC/MS). Each technique has its advantages and its limitations and no single technique is capable of detecting every drug in all types of specimens.

Immunoassays:

The EMIT technique is well accepted for drug screening by many toxicology laboratories. The method for each drug or each class of drugs requires only 0.05 ml of specimen. The results are accurate and precise and can be obtained within 20 minutes. The

EMIT method is specific because it involves a drug-specific antibody reaction. There is always a possibility that other drugs or substances present in the sample may interfere with the test by cross-reaction with the antibody, however; therefore one should always refer to the list of interfering compounds in the product literature (Jolley et al., 1981).

Color-Spot Test and Dip-Stick Method:

The spot test and dip-stick test are simple and rapid procedures that are performed by adding the specimen to the reagent and observing the color formation. These tests can be used to identify, on a presumptive basis, drugs present in the specimen. Although the spot test and the dip-stick method lack the specificity and the sensitivity of the EMIT test, it can be helpful to rapidly determine if the drug is present (Forrest et al., 1961).

Thin-Layer Chromatography:

The TLC method is widely used for drug screening. It has the advantage of being able to detect multiple drugs simultaneously without needing sophisticated equipment. A simplified and expedited form of TLC

designed to screen for a broad spectrum of drugs with an analysis time of less than an hour was developed.

Urine is the most commonly used specimen because most drugs and their metabolites are excreted in the urine and are of higher concentration than in blood. Urine is also available in sufficient quantity and its collection is in general noninvasive. To identify an unknown drug or its metabolites with TLC, the analyst has to evaluate whether the Rf-value and the color characteristics of the drug or its metabolites through all stages of detection match those of the standard drug or its metabolites. Often the chromatographic separation of drugs in the patient sample is not as clear-cut as those in a drug standard mixture. Therefore, interpretation of TLC results is subjective and requires a great deal of experience and training. The sensitivity, for example, for PCP in urine with TOXI-LAB method is 500 ng/ml (Michaud and Jones, 1980).

Gas-liquid Chromatography:

The GLC method is widely used for the analysis of volatile compounds such as acetone, ethyl alcohol, ethylene glycol, isopropyl alcohol, methyl alcohol

and other organic solvents that may be abused. Whole blood is the specimen of choice for evaluation of volatiles; however, serum or plasma also is acceptable. The GLC method for volatiles is simple because the specimen can be diluted and injected directly into the chromatograph. For drugs or compounds that are nonvolatile at the operating temperature of the chromatograph, chemical derivatives have to be made. Thus, the GLC method is not ideal for initial rapid drug screening. The method can be used for further identification and confirmation, however.

**FACTORS CONTRIBUTING TO FALSE-POSITIVE
AND FALSE-NEGATIVE RESULTS**

The clinician and the laboratory should be aware of the factors that may contribute to false-positive and false-negative results. Neither false-positive nor false-negative results are acceptable because of the severe consequences that may follow.

Sample Collection and Handling:

Contamination of the sample may occur from various sources. When urine is collected by catheterization, the sample often is contaminated with lidocaine, which is used as a local anesthetic and is contained in the catheter lubricant. The use of a disinfectant (e.g., alcohol when drawing blood) may give a false-positive alcohol results. Contaminants also can arise from the sample container if it contains trace amounts of substances that may interfere with the analysis. Other sources of erroneous results include sample mix-up, mislabeling of samples, switching of samples, dilution, and adulteration of samples.

Specificity of Analytic Method:

Test methods that lack specificity such as spot tests may cause false-positive results more frequently than false-negative results. In the EMIT assay, the drug-specific antibody may cross react with other drugs to give a false-positive result.

Sensitivity of Analytical Method:

The definition of a positive results of a drug test is governed by the sensitivity of the analytic method used. It is difficult to confirm a positive result if the confirmation method is less sensitive than the initial test method. The unconfirmment positive results therefore do not necessary constitute a false-positive result.

Diuretics:

The use of diuretics may result in the dilution of urine which can render the concentration of the drug below its detection limit. The presence of diuretics can be screened for if suspected.

Drug Metabolites and Conjugation:

Drugs may be metabolized and excreted rapidly in the urine and the parent drug may be present in a relatively small quantity only. If a method that can detect only the parent drug is used, a false-negative result may be obtained. Some drugs are present in urine as a conjugated glucuronide. Unless the conjugate is hydrolyzed to dissociate the drug from glucuronic acid, the drug may not be detected.

Drug Elimination and Retention:

Drug can be eliminated from or retained in the body by making the urine acidic or basic. For example, PCP can be eliminated from the body by making urine acidic (e.g., by using vitamin C, cranberry juice, or ammonium chloride in a hospital setting). Orange juice causes PCP to be retained in the body by making the urine alkaline, however. Some drugs can be stored in the body tissue and released back into the bloodstream weeks or months after ingestion. In this instance, the assay would give a true-positive result. Because of the absence of symptoms, signs and history of recent use, this might be considered a false-positive result by the clinician.

TREATMENT APPROACHES

The emergency physician is always liable to see teenage patients for drug related problems.

If the patient is conscious, as the dose he takes is small and nontoxic, the "high" is found but there is no life threatening injuries we put him in quiet room and the management will be nonconfrontational.

If the patient is with decreased level of consciousness, we talk instoy from family, friends and other squad members and the physician must be sure from the information. He must ask about trauma, medical illness, events at scene and the clinical course during transport. The intoxicated patient must obtain and maintain airway, the child is lift or jaw-thrust maneuver is attempted while maintaining inline cervical traction. We must insure tidal volume.

We give intravenous initial dose of Naloxone (Narcan), this dose is 2 mg. Intravenous glucose is used (empiric therapy). Suction needs to be immediately available, nasopharyngeal airway offering access for suction is better tolerated and thus preferred.

After initial stabilization the patient should be admitted to an intensive care unit for further evaluation and treatment. Several drugs have prolonged effects and any over dose of these drugs requires thorough investigation. Street drugs are often represented and what the patient thinks to have taken may be different from what actually ingested (Nickolson, 1983).

A calmly planned and well organized show of force is better than threats and inadequately aggressive gestures. A quiet reassuring approach is useful, especially for the disoriented or frightened patient (Weber, 1983).

Neurologic flow sheet is used in cases of altered level of consciousness and blood sample is taken and given to lab to make definitive diagnosis of agent. Specific treatment is started and continuous reassessment and monitoring is maintained.

SPECIFIC TREATMENT

Treatment of amphetamines:

Management is generally supportive in stable patients who have ingested amphetamines, lavage followed by charcoal and a cathartic is indicated.

Ipecac should not be used. Diazepam may be used to control agitation and seizures. If the latter are not controlled, phenytain and phenobarbital may be used.

Hypertension is rarely life threatening, but may be treated with IV nitroprusside if needed. Hyperthermia should be managed with a cooling blanket (Robbins, 1979).

Treatment of narcotics (opiates):

The classic signs of opiates overdose are pinpoint pupils and hypoventilation. Treatment is with basic cardiorespiratory support and administration of nalaxone (0.01 mg per kg in a child) by given as a continuous infusion (Guzzardi, 1984).

Treatment of hallucinogens:

Treatment is generally supportive. Emesis lavage and charcoal may be helpful if used within 30 to 120 minutes of ingestion.

Anxiety or paranoid reactions should be treated with psychological support e.g. "talking down" in a quiet environment. Valium may be required if the reactions are severe (Cahen, 1984).

Treatment of Mescaline and Psilocybin are similar to that of LSD, with psychologic support as the major therapeutic modality needed. The only fatality recorded from psilocybin was due to hyperthermia in a child, other than this, the undesired side effects are similar to those mentioned for L.S.D.

Treatment of cocaine:

The early phase of simulation may cause teenager to appear to be acutely psychotic, this case is treated by diazepam (valium). Hyperthermia should be managed with cooling blanket.

In the second phase, patient may present mental depression or with hypotension, respiratory depression and shock. Hypotension should be treated initially with IV fluids followed by dopamine if needed. Respiratory depression is treated with intubation and assisted ventilation. Admitting the patient to the hospital may be required as the depressive stage following use will put many adolescents at risk for possible suicide or aggressive behavior in an attempt to procure more cocaine (Gold et al., 1980).

Treatment of marijuana:

Marijuana has very low toxicity, physician may face an inexperienced teenager with panic reaction in the first time usage. Emesis is used in significant oral ingestion followed by charcoal and catharsis. patient should be "talked down" in a quiet darkened room. Valium may be used for sedation. Followup is indicated; seldom admission is necessary (McGuigan, 1984).

Treatment of alcohol intoxication:

Efforts aimed at decontamination of gut by emesis, lavage, the use of activated charcoal. Alcohol levels of 400 mg% are considered toxic. Alcohol related death are due not only the direct toxic effects of the alcohol but also to other sources such as trauma, vomiting and aspiration or multiple drug ingestion (Edward and Moshn, 1980).

Correction of metabolic abnormalities as we find metabolic acidosis and electrolyte imbalances in alcohol toxicity and supportive care until the effect of the drug wears off.

Treatment of Inhalant:

The clinical presentation follows a biphasic course with initial euphoria and excitation followed by depression. Severe overdose will lead to significant central nervous system depression, convulsions or coma, treatment is supportive. Adequate ventilation must be ensured and other life threatening complications is treated (McGuigan, 1984).

Treatment Approaches:

Today there are a variety of treatment alternatives available for the chemically dependent adolescent:

Inpatient, short-term treatment Programs offering such care are often in hospital settings. The treatment team includes active participation by medical staff, nursing alcoholism/chemical counselors and ancillary staff such as activity therapists and psychologists.

Residential, intermediate-term care: Such services are most often provided from free-standing residential settings. Several well known programs make use of the therapeutic community model in emphasizing the adolescents' acceptance of responsibility for their own behavior and care. Also included in

this category would be the halfway houses, which typically admit those who have already completed a more intensive treatment experience.

Outpatients care: In addition to traditional officebased care, there are a growing number of intensive day programs that constitute partial hospitalization and provide a full range of therapeutic activity.

Most programs share a belief that treatment begins with interruption of use, requires a stable maintenance of society and has its goal the development of a chemical-free life-style. Vestiges of the traditional distinction between alcoholism and drug abuse remain. Some programs care to opiate addicts whose chemical abuse is seen as a habit disorder to be handled behaviorally; other settings may refuse to recognize the polydrug abuse of the adolescent, emphasizing only alcohol-related issues. A growing consensus within the field regards all compulsive abuse of mood-altering substances as part of a single biopsychosocial disease, that of chemical dependency (Glenbeig, 1986).

Inpatient, Short-Term Care:

Among the approaches that emerged in attempting to meet the needs of the chemically involved adolescent were built on the experience of Minnesota Model adult treatment programs. This model was attractive for the treatment of the adolescent in that it (1) provided a structured, time-limited residential stay (2) considered chemical dependency as a disease based on the idiosyncratic response of the adolescent rather than the extent of his or her use and (3) led to an ongoing commitment to an AA-like 12-step recovery within total abstinence program.

Most patient programs for chemically dependent adolescents provide a detailed admission assessment, including a history and physical examination, thorough psychosocial evaluation, exploration of the chemical use history and assessment of educational, legal and psychological status. Staffing is multidisciplinary and includes physicians, nurses, chemical dependency counselors and others experienced in alcoholism and chemical dependency. Such programs place a premium on treatment planning, with attention to all aspects of a chemically impaired adolescent's recovery. In practical terms, this translates into some sort of tutorial support educationally, a family program that

often includes direct family involvement during the patient's hospitalization and a daily activity program geared to development of healthy alternatives to chemical "recreation" (Glenbeigh, 1986).

It is usual in many inpatient programs to expose the adolescent to educational presentations, on the disease concept of chemical dependency. Most inpatient programs stress group therapy; some programs include several hours of group experience daily. The styles of these groups differ. Some programs use mainly didactic introductions to the group process, whereas other treatment facilities employ skilled group facilitators who work toward the development of meaningful group interaction as a vehicle for change.

The atmosphere and expectations of inpatient programs tend to be relatively prescriptive, often having elaborate rules and some sort of behavioral privilege system. This is in keeping with their reputation as being suited for the more impaired, more progressed adolescent chemical abuser.

The usual length of stay in an inpatient program is determined by local patterns and patient needs. In some areas, 28-day stay is customary by reimbursement tradition for adult alcoholism treatment. Many authorities argue that adolescents required a longer

length of stay. Programs that have a 45-to 60-day stay seem to enjoy excellent success. In every case, however, inpatient settings recognize the need for some form of follow-up care. A relatively representative example of a program derived from Minnesota beginnings provides for an intensive, partial-Day program for the 6 weeks following discharge from an inpatient stay of approximately 40 to 60 days, with once-weekly aftercare extending another 6 months following the partial-day program. Other programs are less extensive but tend to maintain the period of active follow-up over at least 6 months. This appears to be critical to outcome success because the adolescent faces his greatest temptations in maintaining abstinence once returned to the home environment (Wheeler and Malmquist, 1987).

Residential Care:

Since the length of stay average 6 to 9 months, one of the immediately obvious distinctions between inpatient and residential care of chemically dependent adolescents is the intensity of the treatment schedule. There is, at a less obvious level, a greater diversity of philosophies and approaches among residential programs than is found among inpatient programs that

explicitly label themselves as being the chemically dependent. Many residential settings accept adolescents who have been identified as having behavior problems, family conflicts, or other mental health issues as well as the chemically dependent teenager (Schwartz, 1985).

Halfway houses, as the name implies, are not intended as primary treatment facilities. Rather they are structured settings from which the recovering adolescent may reenter the community while not returning home. It is relatively common practice to refer an adolescent known to have been involved in large-scale drug sales to a halfway house in another area, in the belief that safety and recovery are thus preserved. Most halfway houses provide only close supervision; residents needing extensive support are seen in local outpatient facilities.

Outpatient Care:

Outpatient care specialized for the chemically involved adolescent may be categorized as:

Abuse counseling-intended to limit progression.

Atercare-designed to support the adolescent returning from a primary treatment.

Day treatment-presented as an alternative to residential or inpatient treatment for selected adolescents.

Family Programming-intended either to educate and support the family members of a chemically dependent adolescent or to develop a nonenabling family system for a chemically abusing adolescent.

Community Networking:

Schools play a key role in helping parents identify adolescents in need of diagnostic and treatment services. Educators observe behaviors and measure performance (including such basics as school attendance and tardiness) and when trained, they can operate effective school chemical dependency programs that can provide parents with essential information about their adolescent.

Many schools provide post-treatment support in the form of aftercare groups, another service for their treated chemically dependent students, as do many small agencies and mental health agencies (Wheeler and Malmquisk, 1987).

SUMMARY, CONCLUSION AND RECOMMENDATION

SUMMARY AND CONCLUSION

Chemical dependency is a state of psychic and physical need resulting from the interaction between the living organism and the chemical substances, characterized by behavioral and other responses that always include a compulsion to take a substance on a continuous or periodic basis in order to experience its psychic effect and sometimes to avoid discomfort of its absence.

This study aimed to highlight the problem of chemical dependency in pediatric and early adolescents, stressing on the nature, mechanism and action of the chemically dependent substances (including stimulants and narcotics, hallucinogens, cocaine, marijuana, alcohol, volatile substances and tobacco smoking).

Chemical dependency is a multifactorial problem which results from interaction between many factors: age, sex, occupation, level of education, religion, race, residency, social standard, marital status, family dynamics and psychological factors.

As regards social factors, it is noted that the interaction between individual and society is complex and frequently controversial.

Chemical dependency can reflect sadness, loneliness, or boredom experience. Also, users can start a mental impairment as psychotic process of depressive episodes.

Proper management should include all members of the society, students, parents, teachers, imams, pediatricians, psychologists and psychiatrists.

Best results can be achieved by designing a proper treatment program, providing all methods of management, biological, psychotherapy, rehabilitation and family dynamics.

Modern analytic technology has made available many reliable laboratory techniques that can be used for screening, identification and confirmation within a time required to be clinically useful.

Pediatricians well trained in disease prevention approaches have a major responsibility in chemical dependency prevention.

They should provide guidance to parents aiming to produce a strong child by building his self-image, binding him to family and society, teaching him skills of communications and learning the logical consequences of one's actions.

Psychiatric consultation may be needed when attempts to resolve crisis have been tried and failed.

Recommendations:

(133)

- * New detoxification centers are needed.
- * T.V. programs, daly journals should alarm people about hazards and complications of chemically dependent substances.
- * The role of imams in mosques is important in preventing addiction.
- * Providing out pattient clinics for addicts.

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ARABIC SUMMARY

الاعتماد الكيميائي هو حالة تصيب جسم الانسان اذا اعتاد على دخول مواد كيميائية دورته الدموية بصفة دورية منتظمة ، والادمان والاعتماد الكيميائي هما وجهان لعملة واحدة

ان انتشار وتعاقد تجارة المخدرات الدولية أصبح أيضا له أثر على تواجد هذه المواد في بلادنا . والدول النامية أو دول العالم الثالث تعتبر مستهدفة لتجار ومهربى المخدرات لكي يحدث تخريب لطاقة الشرب بها ماديًا وصحيا ونفسيا حتى لا تلحق بركب التقدم الحضارى وحتى تدمر داخليا .

لذلك فان الهدف من هذه الدراسة هو عمل مسح شامل لكل أسباب وعوامل ازدهار هذه الظاهرة مع وضع تصور كامل ودقيق لطرق الوقاية والعلاج من الادمان وبالذات للشباب في سن التحول الخطير في حياتهم وبناء شخصياتهم وهو سن من الثانية عشر الى السابعة عشر تقريبا .

ولتكن هذه الرسالة مرجعا لكل مراهق لكي يتعرف على الآثار المدمرة للادمان ويتعرف بطريقة علمية منتظمة على ميكايزمات عمل هذه المواد بجسمه حتى يتعد عنها هو بارادته حتى ينقذ مستقبله في الحياة الصحية الجسمية والنفسية والمالية أيضا . دور الطبيب عموما وطبيب الأطفال خصوصا أن يلتقط علامات الادمان المبكرة وأن يوجه الأسرة والمدرسة لتتبعها ويوقفوا هذه الظاهرة فور حدوثها .

ولا بد من الاشارة أيضا أن أجهزة الاعلام لا بد أن تقوم بالتوعية اللازمة للاقلال من هذه الظاهرة . ولا بد من وضع رقابة على نوعية الافلام والقصص التي يشاهدوها وقرأها الطفل في مرحلة طفولته المتأخرة أو المراهق حتى لا يتأثر مما يراه في المجتمع الغربى من انتشار هذه الظاهرة هناك فنحن نعلم أن في هذه السن يكون التأثير الخارجى على تكوين شخصية المراهق أكبر بكثير من المؤثرات الداخلية في الأسرة ذاتها .

ان هذه الدراسة هامة ولا بد من أن يتعرف على هذه المشكلة الآباء والأبناء والأطباء والمعلمين لكي يبعدوا الطفل والمراهق عن المؤثرات التي تجعله متعرضا لتعاطى

- أى مواد كيميائية تدخله فى دائرة الادمان الخبيثة .
- وسوف نتعرض أولا لأنواع المواد ، التى يوكن أن تدخل فى جسم الطفل أو المراهق ويظل معتمدا عليها وصفاتها ، وطرق استخدامها وكيف تحمل بالجسم .

(١) الكحول

منذ بداية التاريخ المسجل والكحول يستعمل لأغراض ترفيهية وعلاجية ونفسية كثير من المناسبات الاجتماعية والدينية . ودائما كان يوجد تساؤل هل الكحول يعتبر مشروب أم علاج . وهل للمراهق أن يجربه للمعرفة أو يمنع عنه نهائيا . وصفة عامة فالكحول يعتبر من أكثر المشروبات التي تؤدي الى الادمان استعمالا . في الولايات المتحدة أجرى بحث عن سبب الموت المباشر في الثمانينات في السن ما بين ١٥ ، ٢٣ عام فوجد أنه حوادث العصابات التي يقودها شباب مخمور . ووجدت الدراسات أيضا أن استعمال البيرة كمشروب هو المرحلة الأولى التي يمر بها الشاب ويتحول من غير مدمن الى مدمن . فالبدية تكون الكحولات ثم يتدرج الى الحشيش والافيون .

ولكن المراهق المبكر لا يتوقف عن الكحول فقط وبالتالي صورته مدمن الكحول تعتبر غير شائعة بين الأطفال والمراهقين المبكرين ولكننا سوف نصف حالة مدمن الكحول للعرض للتعرف عليها . فعلاقته مع الأسرة تتدهور ومع الزملاء أيضا ويصبح غير قادر على التركيز في الدراسة ويكون حكمه على الأمور غير سليم ، والكلام يكون متلعثما غير واضح ، وعند ازدياد نسبة الايثانول (المادة الفعالة) في الدم يصاب الشاب المدمن بحالة بلادة ثم ذهول ثم يدخل في غيبوبة وقتية . وينتاب مدمن الكحول حالات فقد للذاكرة مؤقتة فلا يذكر فيها الشخص ما حدث أثناء فترة تعاطى الكحول بجرعات كبيرة مع أنه يكون واعيا في هذا الوقت . وفي حالة الادمان في السن الصغيرة لا يحدث للمراهق أعراض انسحاب الكحول من جسمه اذا امتنع عن التعاطى فجأة ولكن هذه الأعراض من ارتعاشات وتقلصات تحدث للبالغ فقط اذا أوقف ادخال الايثانول الى دورته الدموية . ويميل مدمن الكحول الى استعمال المهدئات مع تعاطيهم له .

أما بالنسبة لأثر الكحول على الجهاز الهضمي فهو يسبب التهاب في جدار المعدة مما يساعد على حدوث التهابات وقرح بجدار المعدة ودائما يشكو المراهق والشاب من احساس باللسعة في أعلى البطن . ولمادة الايثانول أخطر الأثر من الناحية الفسيولوجية على الكبد فنحن نعلم أن الكبد هو العضو المنظم والمصنع أيضا للسواد البروتينية والدهنية في الجسم وهو الذي ينظم عملية افرازها في دورة الدم في جسم الانسان وتواجد الكحول في دم الانسان يعوق الكبد عن عمله بصورة طبيعية وينعته من تكوين السكر ومن تخليق البروتينات . كما أن متعاطى الكحول في سن

المراهقة المتأخرة يحدث له تضخم الكبد عن المعدل الطبيعي بسبب تراكم الدهون بين خلايا الكبد ويؤدي ذلك الى التهاب الكبدى وفشله نهائيا فى المستقبل ولكن مما يعكس عن التفاؤل هو أن امتناع مدمن الكحول عن التعاطى ينهى هذه التغيرات المرضية ويعود الكبد الى وظيفته مرة أخرى . وأرد أن أوضح أيضا أن تغيرات الكبد نجدها بصورة نادرة فى المراهق عند سن ١٥ : ١٨ سنة ولكنها حتما سوف تحدث اذا استمر التعاطى .

وصاب الجنين بتشوهات خطيرة اذا كانت أمه مدمنة مثل صغر حجم الرأس ، التخلف العقلى ، ونقص فى الوزن والطول . كما تحدث تشوهات لشكل الأنف والوجنتين ولا يوجد حد معين يمكن أن نعرف به ماهى نسبة الايثانول فى الدم التى عندها يحدث أو لا يحدث تشوه للجنين . ولكن المؤكد هو أن شرب ٨٩ مليلتر فى اليوم من الكحول يشكل خطرا شديدا على الجنين .

وأما بالنسبة لآثر تعاطى الكحول فى سن مبكرة على نمو المراهق يتمثل فى أعراض نفسية مثل الميل للوحدة والانحراف والسراقات ، وينحرف نمو المراهق العاطفى والاجتماعى . كما أن التغيرات النفسية التى تصاحب سن المراهقة هى حد ذاتها تكون عامل فعال فى ميل المراهق للشراب تشبها بالكبار أو لكى يقلل من احساسه بالقلق والوحدة والملل .

وللوالدين آثار مباشرة تجعل المراهق يتعاطى الكحولات أو المخدرات مثل العوامل الوراثية ، فالمدمن يجعل ابنه مدمنا أيضا سواء عن طريق الاستعداد الوراثى أو بكونه نموذجا له أو عن طريق تواجد الكحول فى المنزل . وغالبا ما يبحث المراهق فى سن ١٢ : ١٥ سنة الى نموذج يتعجب به ويكون الأب غالبا بالنسبة للذكور فيقلده فى تعاطى الكحول . ويوجد أيضا علاقة مباشرة بين ادمان الكحول والانحراف المبكر فى السلوك ، فالمنحرف يقابل بالرفض من عائلته وزملائه فيفقد تقديره لذاته ويبحث المراهق عن جماعة تقبله كعضو بها ولا يجسد الا الجماعات المنحرفة التى تدمن فيتعجب بها ويدخل فى دائرة الادمان الأخر .

(٢) الحشيش (الماريجون)

من أشهر المواد المخدرة المحظورة استعمالها الحشيش ،فهو له شعبية كبرى في الولايات المتحدة أو أوروبا أو في الشرق . الماريجون تعتبر ذات أثر مضاعف من الحشيش . وتوجد في أوراق نبات الحشيش مادة تسمى الكنابينون وهي لها أثر مباشر على الجهاز العصبي النفسى للإنسان . ومن المعروف أن قوة فاعلية المادة المذكورة تقل كلما طالت الفترة بين وقت حصاد النبات ووقت استعماله . وتستعمل مسادة الحشيش عن طريق استنشاق الدخان من خلال السجائر . فيقوم المدمن بلف حوالى ٥٠٠ : ٧٥٠ مجم من المادة في ورق رفيع جدا ثم اشعاله وتدخينه ،أو عن طريق الغليون أو (الجوزة) أو (الشيشة) أو (الترجيلة) لكى تهلأ وتخفف من حدة دخان الحشيش المحترق وبالتالي تسمح للمتعاطى بأخذ كمية أكثر .

ولكن يصل المتعاطى الى أقصى تأثير ممكن من المادة فيجب عليه أن يستشق أكثر مما يفعله مدخن السجائر ولا بد أن يكتم نفسه ويمنع الزفير لفترة تتراوح من ٢٠ : ٣٠ ثانية لكى يأخذ المادة المخدرة داخل أوعية الدم الموجودة بالحوصلات الرئوية ولرائحة دخان الحشيش (الماريجون) صفات معينة فهى نفاذة مادة مشابهة لرائحة حرق القش وتلتصق الرائحة بالشعر أو بالصوف .

والجدير بالذكر أن استهلاك كمية معينة من الحشيش ربما تعطى أثرا لا يذكر فى وقت وفى وقت آخر تعطى أثر قوى ملموس على الحالة النفسية والقوى المعرفية والأدائية لنفس الشخص . ويخلط الحشيش بعجينة الكوكايين أو بالأيون .

والجرعة التى تسبب تسمم قوى بالحشيش هى ٠.٣٥ ر مجم لكل كيلو جرام من وزن المتعاطى . ويظهر عمل المادة المخدرة بعد ٣٠ دقيقة فى حالة البلع ويمعد دقيقتين فى حالة الاستنشاق ويستمر الفعول لمدة حوالى ساعتين . ونستطيع أن نكتشف آثار تعاطى الحشيش فى البول لمدة يومين بعد التعاطى .

المتعاطى الثمل بالأيون يختلف عن نظيره فى حالة الكحول فالأول ربما يبدو عاديا فى المظهر وفى سرعة ومحتوى الكلام ولكن بعد عدة ساعات من الوصول للبهجة والنشوة (الثمالة) اذا استمر تأثير المادة الفعالة فى الدم ،يدخل المتعاطى نفسى

حالة من بِلادة ذهنية وتهيج يتحول لغضب ودوخة ربما تنتهي بنوم .
وحيثما تذهب هذه الحالة يحس المتعاطى بميل لشرب سوائل سكرية أو غازية .
وبالنسبة للعلامات الملموسة في حالة الجسم نرى أن ضربات القلب في حالة ازدياد
وتهيج في ملتحة العين .

والمتعاطى المبتدأ يصاب بتهيئات وخيالات وهلوسة مرئية بصورة كبيرة . كما
أنه يصاب بظاهرة الفلاشباك وهو يعيش في مواقف لا توجد الا في أفكاره وخياله هو
ويتعايش معها في وقت تواجد مع جماعة المتعاطين ولا يشعر بما حوله ويصبح ممن
الخطر أن يقود سيارة وهو في هذه الحالة لأنه لا يتفاعل مع المؤثرات من حوله بصورة
سليمة ويكون وقوع الحوادث أمر مؤكد .

والمتعاطى لا يدرك مرور الوقت ولا يدرك أبعاد المكان أو عمقه كما أنه يعاني
من عدم تذكر للأحداث القريبة التي تحدث له أثناء وقوعه تحت تأثير المخدر القوي .
وتستمر هذه الحالة لمدة حوالي ١٢ من تعاطى الشخص الماريجونا أو الحشيش .
وبالطبع تختلف قوة التأثير حسبما اذا كان الشاب يتعاطى لأول مرة أم متعاطى كثيرا
من قبل ، وتختلف أيضا حسب كمية الجرعة .

ومن الدوافع التي تجعل المتعاطى سعيد هو أن تدخين الماريجونا يجعله
يشعر براحة ورغبة في الضحك بصورة فجائية واسترخاء وهندوء . ومن الجد ير بالذكر
أن المتعاطى ، يشعر بتقدير خاطئ لمرور الوقت فيتخيل مرور الوقت بصورة
أطول من حقيقته . أما عن آثار تعاطى الحشيش فيما بعد فهي الاكتئاب وتغير
نظام النوم وفقد الشهية .

وقد تم حصر صفات المدمن التي اذا توافرت في شخص ما فانه يعتبر مدمننا
ويستحق العلاج كما يلي :-

- (١) التعاطى يوميا لمدة شهر على الأقل .
- (٢) فقد للأصدقاء والغياب عن العمل أو الذهاب الى المدرسة .
- (٣) فقد للرغبة في المشاركة في نشاط كان يمارسه المتعاطى قبل الادمان .
- (٤) محاولات غير ناجحة ومتكررة للاحجام عن التعاطى .
- (٥) تكيف لأثر المادة على الجسم .

(٣) المنبهات والمهدئات

أولا : المنبهات :

الأمفيتامين

مجموعة من العقاقير التي تحوى مركب كيميائى معين له صفة التثبيته وهى مجموعة على رأسها الأمفيتامين وتؤخذ هذه العقاقير عن طريق الفم أو تستشق أو تحقن ، ويكون المتعاطى له متحدث كثيرا عصبيا لحد ما ومتهيج .
والمتعاطى لهذه العقاقير يفتقد شهيته ويكون قلقا فى نومه . ويلاحظ أسراع فى ضربات القلب وازدياد فى ضغط الدم الشريانى . واذاتم حقه بالوريد بسرعة يؤدى فشل فى القلب .

والأوساط الطبية سمحت باستعماله فى حالات معينة هى : انقاص الوزن فى فترة قصيرة ، حالات مرضية معينة تتميز بنوبات نوم عميق قصير وفى حالات نقص الانتباه .
فهى حينما تعطى للمرضى الذين يعانون من السمنة فانها تقوم باضعاف شهية المتعاطى لها ، ولكن المتعاطى يعتمد على هذا الأثر بعد عدة أسابيع ولا يكون ذو فائدة . أما بالنسبة لعلاج حالات الناركوليبسى ففائدة العقار تأتى من كونه يزيد تيقظ المريض ويحسن مدى انتباهه . ويبدو أيضا أن عقار الأمفيتامين يوجه السلوك فى مراحل النمو الأولى حينما يكون هناك تحكم مخى ضعيف كمثل حالات التأخر العقلى .

وإذا ازادت كمية الأمفيتامين عن حدها فان ذلك يسبب تسمم وقتى بالعقار تظهر فى صورة عدم راحة وتهيج واكثار من الحديث وتوتر وقلق واحساس بالسعادة كاذب وزيادة فى الرغبة الجنسية مع وجود أفكار حول الانتحار . ونرى هذه الأعراض أيضا فى حالات التعاطى المزمع لفترات طويلة لهذا العقار حتى ولو كانت الجرعات قليلة فى كل مرة . وقد أجريت دراسة فى أمريكا على ٥٢ أم فى سن ١٦ سنة مدمنة للعقار فوجد أن أبناءهم يعانون من اضطرابات عاطفية . وأجد يرب بالذكر أيضا أن التعاطى عن طريق الوريد يحمل خطرا يهدد الحياة وذلك عن طريق تلوث الأبر أو فشل الكلى أو توقف القلب النهائى . ومدمنات الأمفيتامين من النساء يكون لديها

شعور بالاحتقار الشديد لذاتها ولا يكون لديها رغبة في مواجهة مواقف الحياة الواقعية والكثير منهم يحتاج لعلاج نفسى .

ويوجد أيضا أنواع تسمى الاقراص المنبهة تستعمل بطريقة شرعية وتباع في الصيدليات ومحلات البقالة وتحتوى على مواد منبهة مثل الافدرين والكافيين ،
وحيثما يزيد المراهق من استعمالها يصاب بتهيج وصداع وزيادة لضربات القلب وحالة بارانويا مشابهة لحالة البارانويا المصاحبة للامفيتامين (خوف وتشكك فى كل من حصول المريض) . ويكون الهدف المنشود من استعمال هذه العقاقير هو زيادة الطاقة والقدرة على التركيز فى الاستذكار بالنسبة للطلبة فى سن المراهقة ولكن هذا اعتقاد خاطىء لان ما يصيبهم هو عكس ذلك تماما كما سبق ان اوضحنا . والخطر الشديد ايضا من استعمال الشباب لهذه العقاقير انها تكون المدخل المبكر لاستعمال العقاقير المغيرة لحالة الشخص النفسية وبالتالى تكون مدخلا للادمان فى شبابه .
كما ان الاعتقاد بانها غير ضارة تجعله يأخذ المزيد منها ويؤدى ذلك لحالات تسم حادة .

ثانيا : المخدرات او المثبطات :

يعتقد الناس ان المخدرات هى المواد التى تسبب النوم ، ويعتقد البعض ان المخدرات تعنى الاقيون وكل هذه التعبيرات تحمل قدرا من المعنى الحقيقى . وسوف نتعرض الان للاقيون ومشتقاته كمثال لهذه المجموعة .

وتعمل هذه العقاقير عن طريق التأثير على الجهاز العصبى المركزى فى مواقع معينة مخصصة لاستقبال المادة وتؤدى هذه المجموعة الى انخفاض فى التنفس وتغيرات فى الحالة المزاجية ويكون سحابة ذهنية تعوق التفكير السليم . وتؤدى أيضا الى الغثيان والقيء . ولها تأثير قليل لا يذكى على القلب والأوعية الدموية الا عند جرعات كبيرة من مشتقات المورفين قد يؤدى الى انخفاض فى عدد دقات القلب . وجميع هذه المواد المخدرة يعبر المشيمة الى دورة الجنين الدموية ويظل فى جسمه لمدة أربعة أيام بعد ولادته .

وللاقيون صفة مميزة له وهو ان متعاطيه يعانى من أعراض انسحابه من جسمه

كما أنه قد يصاب بحالة اعتياد لأثر الأفيون على جسمه ولكي لا يصاب بالادمان
بعضى عدم القدرة على الاستغناء عنه ولكن هذا لا يعنى به أنه غير خطير .
ومن الصعب جدا أن نقنع متعاطسى الأفيون بالابتعاد عنه . وعندما نحاول أن نعطى
مدمن الأفيون حقنة المادة المضادة ففى خلال دقائق يعانى المتعاطسى من أعراض
الانسحاب وهى تختلف من شخص لآخر ولكنها تشمل عدم راحة وسيولة لدموع
العين وسيولة لافراز الأنف وعرق شديد . وقد يحدث قيء وتشنجات لعضلات البطن
ومعدل التنفس وضربات القلب . وكل هذه الأعراض تكون مزعجة جدا وغير محتملة
بالنسبة للمتعاظى وبالتالى فهو يرفض العلاج ويطلب المزيد من التعاطى .

الهيريون :-

يلجأ زارعى الخشخاش الى تحويل الأفيون الى مورفين ثم يعثوا به الى جنوب
فرنسا حيث يتحول الى الهيريون الذى يعتبر أقوى ثلاثة مرات من المورفين ثم يباع
فى الولايات المتحدة ومع الأسف فان مصر قد أصبحت هدفا لتجار الهيريون
الدوليين لما له من عائد مادية ضخمة من تجارته . فمثلا عشرة كيلو جرامات من
الأفيون المسموح به تساوى ٣٠٠ دولار فانها تباع فى الشارع بالتجزئة بما يساوى
٥٠٠ر٠٠ دولار وفى حالة الهيريون تتضاعف القيمة المادية ويقل وزن المادة المهربة
بمقدار الثلث . وقد وجدت أسواق لتصنيع وتجارة الهيريون العالمية مثل المكسيك
ومورما وتايلاند وأفغانستان وباكستان .

ولا بد أن نعلم أن أدمان الهيريون لا بد من اعتباره جريمة يعاقب عليها
القانون بشره لأن بداية أثره على المتعاطى سريع بعد حوالى ٣ ساعات
فى تعاطى له ثم يجعل المتعاطى فى حالة تستلزمه أن يأخذ جرعة كل ٨ أو
٩ ساعات أى عدة مرات يوميا والا سيعانى من أعراض هائلة ومدمرة عندما ينسحب
أثر المادة من جسمه وبالتالى يصبح الشاب عبدا لمن يعطى له الهيريون ولا يستطيع
أن يتخلص منها الا بطرق علاجية سوف نتعرض لها فيما بعد .

(٤) حبوب الهلوسة

هى مواد تسبب الهلوسة استخدمت منذ القدم واستعملها الأمريكيون فى الستينات ومن صفات هذه المواد أن تنتشر بطريقة سريعة وكبيرة فى جسم الانسان ولكنها لاتظهر فى الدم حتى ولو كان الشخص فى حالة تسمم من هذه المواد . لذلك فان الاختبارات التى تجرى على الدم لاقيمة لها . وهذه العقاقير تؤدى الى اضطراب فى استقبال المدركات الخارجية وحقيقة الظروف حول الشخص المتعاطى فى وقت تعاطيه الاقراص والمتعاطى أيضا يتخيل حدوث خبرات سابقة لم يكن قد مر بها فى ماضيه .

عقار (ال . اس . دى)

وهو يستخلص من فطر الأزيجوت ، ويستعمل عقار للمراهقين يتعاطونه فى الشارع ولم يكن مشكلة حتى ١٥ عام مرت . ويوجد هذا العقار على هيئة أقراص اسطوانية أو مربعات جيلاتينية أو ورق نشاف يوضع به العقار ويضع الورق لاستخلاص المادة ، ويعتبر ال . اس . دى أقوى عقار ، يؤثر على نفسية متعاطية مباشرة .

ويشعر المتعاطى لحالته النفسية الأصلية تدريجيا بعد ٦ : ١٢ ساعة ، وهو يمتص من الجهاز الهضمي وينتشر لكل أنسجة الجسم بما فيها المخ بسرعة .
والجدير بالذكر أن هذا العقار لايسبب أعراض حينما يبدأ أثره فى الانسحاب من الجسم . وحينما يظهر أثره فى الجسم يشعر المتعاطى بهلوسه فى الرؤيا وخيالات سمعية وكثيرا ما يشعر المتعاطى وكأنه يرى روائح ويسمع ألوان .
ولا يشعر المتعاطى بمرور الوقت . وإذا أجرى للمتعاطى اختبارات ادائية فان أدائه يكون أقل من العادى . والنسبة لخطوات عمليات التفكير فانها تتم بترتيب غير منطقي ويحدث قفزات فجائية الى النتيجة النهائية التى تهدو وكأنها ذات قيمة للمتعاطى . وفى حالة تعاطى جرعات كبيرة فانه يحدث توحيد بين كل مسن الإدراك والشعور والحس ويصبحوا كلهم كم واحد يشعره المتعاطى فى نفس الوقت .
ويكون المتعاطى اما فى حالة عاطفية سارة جدا أو شبيهة جدا .

أما بالنسبة للآثار المدمرة والحادة للعقار فانها تكون حالة من الجنون والاكتئاب

والغثك ، وحينما يشعر الشخص المتعاطى بآثار عاطفية سعيدة عند تعاطيه للعقار ذات مرة فان هذا لايعنى أنه سوف يشعر بالآثار الطيبة في المرة القادمة . ويكون المتعاطى لهذا العقار بطريقة حادة متميزا بتغيرات فسيولوجية معينة وهى : فتح حدقتى العين وأسراع فى دقات القلب ، وحصى .

أما فى حالة تعاطى هذه الحبوب بصورة مزمنة فان المتعاطى يشعر بخيالات مرت فى حياته سابقا (فلاش باك) مع تفاعلات اكتئابية وتغيرات مستديمة فى الشخصية . ولا نعلم ما اذا كان هذا العقار يسبب هذه التغيرات النفسية الكبرى ، أم انه يزيح الستار عن مشكلات كانت موجودة من قبل . وحالة الفلاشباك عبارة عن صورة ذهنية لحالات انتابت الشخص المتعاطى حينما ابتلع العقار فى وقت سابق ، وتحدث له دون أن يبتلع قرص آخر وقت حدوثها . وحينما يشخص الطبيب حالة تعاطى لحبوب الهلوسة تكون غالبا حالة تسم شديدة بهذا العقار لأنه حالة إشارة المشاعر السعيدة التى قد يحدثها العقار لا يطلب المتعاطى الذهاب لأى مركز علاج .

- جوزة الطيب :

وهى منتجات من ثمار أشجار الميرستيكا فراجران ، وبذور هذه الثمرة هى جوزة الطيب وحينما تلحقن هذه البذور فانها تعطى نوعا من التوابل ، كما أن زيت هذه البذور يحتوى على مادة الميرستيكيان . وآثار هذه المادة على الجهاز العصبى المركزى عبارة عن غثيان وقىء وطفء لدقات القلب تحدث عند ابتلاع ٥ : ١٥ جم من جوزة الطيب .

(٥) المواد المتطايرة (المستنشقات)

- المواد المتطايرة تستعمل لتغيير حالة الشخص المزاجية ووعيه وادراكه منذ القدم .
والمواد الاتي ذكرها تستخدم كمستنشقات يتغير بها حالة الفرد المزاجية وهي : السوائل
المنظفة والاصباغ ، ومزيل طلاء الاظافر ، والدهانات ، والمذيبات ، وملمع الاخذيسة ،
ومزيلات العرق ، وطفائيات الحريق ، واخيرا موسعات الشرايين التاجية . وتتلخص اسباب
انتشار واستعمال هذه المواد في الاتي :-
 - (١) سرعة بداية عملها ، فالشماله تبدأ بعد دقائق قليلة من استنشاق المواد وتدخل
هذه المواد الى دورة المخ الدموية بسرعة فيشعر المستنشق باحساس متدفق بالنشوة
ويكون في حالة سعادة بلا سبب .
 - (٢) يحتاج الصبي المراهق لاثبات ذاته وحينما يسمع عن الآثار السابق ذكرها لهذه المواد
فانه يلجأ لاستنشاقها على سهيل التجربة .
 - (٣) مستشقي المذيبات العضوية دائما يكونوا من أسر ذات دخول منخفضة مثل الصبيبة
الذين يعملون في محطات البنزين ويكون الدافع اقتصاديا في هذه الحالات .
 - (٤) ويسهل الحصول على هذه المواد ففي كل جراج ، أو مخزن منزل لابد من وجود
منظفات أو جاز كما يمكن الحصول عليها من السوبر ماركت أو مستودعات الادوية .
 - (٥) سهولة طرق تعليب وتغليف هذه المواد فيمكن أن تستخدم بواسطة الصبية أثناء
الهموم الدراسي .
 - (٦) وتستعمل هذه المستنشقات بواسطة الاطفال ويكونوا اول تجربة لهم مع المواد التي
تسبب الادمان ويقل استخدامها عند التقدم في السن . ودائما يوجد علاقة
بين التفكير الاسرى واستخدام هذه المواد .
- وكقاعدة عامة دائما تستنشق هذه المواد الطيارة في جماعات وغلبا توضع
المادة في لفافة بلاستيكية أو ورقية وتستنشق أبخرتها . أو تغمس قطعة من القماش في
المادة وتستنشق من خلال القماش مستعملا الاثف والغف معا .
- والمذيبات الصناعية السائلة تستنشق مباشرة من الاناء . أما بالنسبة للأغراض الاكلينيكية
التي تحدث هي حالة خدار وهلوسة مزاجية مع عطس وكحة وسيولة اللعاب . ويحدث

غثيان وقئ. أحيانا في المرحلة الأولى وحينما يستمر المتعاطى في استنشاق يبدأ حدوث انخفاض في عمل الجهاز العصبي المركزي ويبدأ الشخص في الظهور بحالة اضطراب وعدم اتزان ويبدأ في سلوك هجومي وعند الاستمرار لفترة أطول في الاستنشاق يحدث انخفاض في الجهاز العصبي المركزي بصورة أكثر مع عدم اتزان في طريق المشى ولا يوجد الأفعال الانعكاسية الطبيعية المفروض وجودها في الشخص الطبيعي . والمرحلة الرابعة تحدث حينما يدخل الشخص في حالة تنفس له صوت عالٍ " شخير " ثم يحدث بعد ذلك نوبات مرضية تتميز بنوم عميق متقطع ثم يصبح المستنشق عرضة لتوقف قلبه وودورته الدمويته

وسنذكر الآن بعض هذه المواد وسوف نذكر طريقة عملها في الجسم :

(١) التوليين :

وهو من مشتقات البنزين ويستخدم في صناعة المواد اللاصقة وطلاء الاثرليك وهو يستخدم بكثرة كمذيب بدلا من البنزين . واستعمال هذه المادة يسبب حدوث اصابة باثولوجية في أنسجة المخ . ويحدث للجرعة المستنشقة من التولين عملية ازالة لعشرين في المائة منها بواسطة الرئتين ويتأكسد الباقي الى حمض البنزديك ثم يزدوج مع الجلوسين (حمض أمين) ثم يزال من الجسم في البول . ويمكن قياس مادة التولين في دم الشخص المتعاطى له .

(٢) الجازولين :

هو مشتق من مشتقات البترول وتكوينه يختلف على حسب عمليات التكرير وعلى حسب المواد التي تضاف . وهو خليط من مواد هيدروكربونية . ويمتص الجازولين من الرئتين ويبدأ أثره في الحدوث خلال أربعة دقائق من الاستنشاق . واذا استنشاق الشخص ١٥ نفسا من بخار الجازولين فيكون ذلك كافيا للعمل في الجسم لمدة ستة ساعات . ويحدث تسمم حاد أو مزمن بواسطة الجازولين والأعراض تكون دائما أعراض تشمل الجهاز العصبي مثل عدم اتزان المشى والارتعاشات وتقلصات العضلات .

(٣) الهيدرو كربونات الهلجنة :

وهي تستعمل كمذيبات ومزيلات للدهون والبقع وأكثر هذه المجموعة انتشارا

الترايكلورايثيلين وتوجد مركبات من هذه المجموعة تستخدم كأداة تفجير أو في القنابل .
وتسبب هذه المواد حالة انخفاض شديد في جهاز الانسان الدورى ويحدث اضطراب بالقلب
تؤدى الى اسراع في دقاته واضطراب في الضربات . والتسمم الشديد بمادة الترايكلورايثنان
وهى مادة من نفس المجموعة المذكورة يؤدى الى زيادة افراز مادة الكاتيكول أمين التى
تؤدى الى اضطرابات في ضربات القلب وتؤدى الى توقفه مباشرة .

(٤) أكسيد النيتروز :

وهى مادة تستخدم في موتورات السيارات والدراجات البخارية كمولدات للمقوى اضافة
كما يستخدم تجاريا كمولد للقوى في تضريب الكريمة . وهو يسبب لمستشقه مثله من كل
المواد الطيارة المستنشقة احساس وكأن الشخص عائم وحاله من الانتعاش والخفة .
والتعرض الشديد لاستنشاق الغاز يؤدى الى ضعف وقلة التنفس مع حدوث نقص شديد
لاوكسجين دورة الدم بالمخ مما يؤدى لحدوث تهدم لأنسجة المخ مما يؤدى بحياة الفرد
نهائيا .

(٥) النيتريت :

وهذه مجموعة كيمياوية تتميز باعتقاد شائع بين الناس انها تسبب في اسراع الاحساس
بالنشوة الجنسية ، ويمكن الحصول على هذه المواد من المحلات الكبرى تحت أسماء
تجارية مثل مزيلات الروائح أو معطرات الجو أو كبخور سائل .

وهذه المجموعة تسبب انبساط للعضلات الصغيرة ويؤدى استعمالها الى احساس
بالدوخة والدوار ثم فقدان الوعي نتيجة له قلة الدم الذى يصل الى المخ وذلك ناتج
عن الاتساع الذى يحدث للأوعية الدموية في الجسم فيسحب الدم من الأوعية الدموية
المخية وبالتالي فاننا يمكن أن نفسر النشوة الجنسية التى تحدث سريعا بأنه قد حدث
اتساع في أوعية القضيب الدموية .

ونفسر التسمم الذى يحدث من زيادة استعمال هذه المواد بحدوث اتساع زائد
للأوعية الدموية فيسبب الدوار وفقد الوعي ثم يحدث قلة أوكسجين بالأنسجة بعد ذلك
نتيجة لتكون مادة تسمى الميتهميرجلولبين في الدم .

(٦) الطباق والتدخين

التدخين هو السبب الوحيد للمرضى المؤدى للموت الذى يمكن لنا أن نتلافاه فى مجتمعنا أو هو أيضا من أهم مشاكل الصحة العامة فى عصرنا هذا ، ولو كل المدخنين ألقموا عن التدخين فى الولايات المتحدة فسيكون هناك انخفاض بنسبة ٢٥ % من ولادات الأطفال ذوى الأوزان القليلة ، وانخفاض بنسبة ٣٣ % فى أمراض القلب ، وانخفاض بنسبة ٤١ % فى وفيات الأطفال بين سن ١ شهر و ٥ سنوات ، وانخفاض يصل الى ٥٠ % فى حالات سرطان المثانة البولية . أما سرطان الرئة فانه سيقبل بنسبة ٩٠ % لو امتنع المدخنين عن التدخين . وتوجد احصائيات أمريكية تقول أن ٣٥٠.٠٠٠ أمريكيا يموتون مبكرا قبل أعمارهم الافتراضية بسبب تدخين الطباق .

وعلى الرغم من أن ٩٠ % من المراهقين يدركوا أن التدخين هو ظاهرة ضارة بصحتهم إلا أن القليل منهم فقط هو الذى ينظر الى التدخين على أنه خطر يهدد حياتهم . ويشيع اعتقاد أيضا بين المراهقين وهو أنهم يستطيعون الامتناع عن التدخين وقتما يريدون ، ومن ثم ، فهم يستمروا فى هذه المادة السيئة مما يتيح الفرصة لحدوث الأمراض المزمنة .

والمرأة البيضاء تحت سن ٢٥ سنة يكون بينهم نسبة تدخين تصل الى ٤١ % والتدخين فى المراهقة المبكرة يعتبر أداة تبؤ لسلوك أخطر سوف يحدث فى المراهقة المتأخرة ، مثل ادمان الكحول أو الاعتداءات الجنسية أو حوادث السيارات . ولأن التدخين بواسطة المراهقين ممنوعا من الناحية القانونية فانهم يستخدمون كرمز للتحدى للسلطة . ويقول العالم ببرى عام ١٩٨٥ أن الشخص الذى يتعاطى عقاقير أو يشرب مؤسروبات روحية فى سن الثامنة عشر دائما يكون هو نفس الشخص الذى جرب التدخين فى سن الثانية عشر . ويدخل صفار المدخنين الى مرحلة النصح ومعهم عادة خطيرة وسيئة وهى التدخين . وهنا نقول أن كلمة عادة ليست دقيقة ولكن التسمية السليمة هى اعتماد واعتماد على المادة الموجودة فى السجائر وهى النيكوتين .

ويقوم النيكوتين باحداث آثار سيكولوجية نافعة للمدخن لانه يقلل الاحساس بالألم ويقلل الرغبة للحلويات والسكريات ويقلل عموما من مقدار السعرات الكلية المطلوبة

اعطائها للجسم ، ويزيد النيكوتين من احساس المدخن بالتيقظ ويقلل من احساسه بالقلق وهذه الآثار تجعل المدخن سعيدا بالطبع .

وبالنسبة للتفاعلات البيوكيميائية للنيكوتين فهو يخفز خروج مادة الكورتيزول وهوورمونات النمو للخروج في الدم وهو يمكن أن يعمل كمنشط وكمهدي في آن واحد ، ففي الجرعات الصغيرة فهو يثير مستقبلات الأستيل كولين المركزية ، ولكن عند الجرعات العالية فانه يمنع هذه المستقبلات من حساسيتها ، وبالتالي فان النفس الضحل " الغير عميق " للسيجارة يهدأ بينما النفس العميق يؤدي كمؤثر مهيج للأعصاب . ويصل النيكوتين للمخ في فترة سبع ثواني من بداية استنشاق النفس ، وهذا يعتبر معدل سريع لوصول المادة في الى المخ . و دائما يحدث عملية اعتماد سريعة () على النيكوتين في دم المدخن ، ويفقد المدخن قوة تحكمه في عادة التدخين ، ويعاني المدخن من عادة الرجوع الى التدخين بعد فترات امتناع . والجدير بالذكر أن ٨٥ % من المدخنين من المراهقين المبكرين الذين يدخنون سيجارتين يوميا سوف يكونوا مدخنين منتظمين مستقبلا . ومن المؤسف أن نسبة كبيرة من المدخنين الدائمين يفضلوا حينما يحاولوا الامتناع عن التدخين بسبب اعتياد أنسجة الجسم على تواجد مادة النيكوتين بالدم . و دائما تحدث عودة الى التدخين بعد فترة امتناع في خلال السنة الأولى . ونستطيع تلخيص معنى ايمان التدخين في أنه عدم قدرة على تنظيم السلوك مع وجود رغبة عكسية في الامتناع عن هذا السلوك " نقص سلوك تدخين السجائر "

الطباق عديم الدخان :-

ونحن نعلم أن تدخين السجائر ليس هو السبيل الوحيد لاستعمال الطباق ، ففي العشر سنوات الأخيرة انبعثت من جديد ظاهرة النشوق ، وظاهرة مضغ التبغ " الطباق " . وفي أوائل السبعينات بدأت شركات صناعة السجائر في عمل دعايا لزيادة استعمال التبغ عديم الدخان ، ومع الأسف لم يوضع حد لهذه الدعاية من الناحية القانونية ، وبدأت للمراهقين الصغار وكأنها شيء عديم الضرر . ويصل عدد الذين يستعملوا هذا الطباق من المراهقين في الولايات المتحدة الى حوالي ٣ مليون ، وزادت المبيعات من هذا التبغ بنسبة ١١ / % في العام الواحد منذ عام ١٩٧٤ ولا يستعمل التبغ

بطريقة المضغ كثيرا في الفتيات ، وظاهرة انبعاث استخدامه من جديد تعتبر عودة لما كان عليه الأسلاف لأن النشوق كان منتشرا بين عامة الناس في القرن التاسع عشر . ولكن في عام ١٨٨٠ لفتت نظرية " كوخ " عن الجراثيم أن مضغ التبغ يعتبر مصدرا للعدوى وبالذات بالنسبة لميكروب السل . ورغم أن التبغ عديم الدخان يسوق على أنه بديل غير ضار عن السجائر إلا أنه ليس خاليا من الأضرار . فمستعمل هذا التبغ يعرضوا تكويف أفواههم الى وجود مواد مسببة للسرطان ويستمر وقت هذا التعرض لفترة أطول منها في حالة السجائر العادية . وسوف نعطي مثال لذلك : فالمدخن يستشق الدخان لفترة حوالى ١٠٠ دقيقة أو أقل يوميا بينما متوسط المدة التى يضيها مستعمل التبغ فى فمه حوالى ٨ ساعات ونصف يوميا وربما تطول الفترة الى ٢٤ ساعة يوميا ! أما عن المضاعفات المعروفة والمتوقعة لهذا النوع من التبغ فهى حدوث تراجع فى اللثة ، وسرطان الفم ، وتسوس الأسنان وارتفاع فى ضغط الدم الشريانى وهى كلها حالات مرضية خطيرة جدا

ويرجع سبب ارتفاع ضغط الدم فى حالة استعمال التبغ بطريقة المضغ الى تواجد نسبة عالية من الصوديوم فى التبغ .

استعمال الطباق كمشكلة صحية للأطفال :-

تعتبر هذه المشكلة هامة جدا فى مجال صحة الطفل فلا بد من منع استعمالها بواسطة الصبية المراهقين حتى نتلافى أثارها الضارة عليهم مستقبلا . وللأسف فى الأطفال والصبية الذين يولدون فى أسر يدخن فيها الأب أو الأم أو كليهما فانهم يعتبروا مدخنين منذ الصغر لأن الأطفال الذين يولدون لأمهات مدخنات أثناء فترة الحمل يكونوا أقصر فى الطول وأقل فى الوزن وأكثر عرضا للموت فى فترة الشهر الأول من الولادة . وكلمما زادت جرعات النيكوتين فى دم الأم الحامل زادت الآثار الضارة على معدلات نمو الجنين سواء داخل الرحم أو بعد ولادته . وقد يصل وزن الجنين عند ولادته الى ٢٥٠٠ جرام حينما تكون أمه مدخنة وهذا يعتبر جنين ذو معدل نمو متأخر . كما أن احتمال اصابة هذه الأجنة لظاهرة الموت الفجائى تكون أكثر بنسبة الضعف تقريبا . وأثناء مرحلة الطفولة يكون الطفل الذى تعرض للتدخين فى

سن ١١ مثلاً أقصر فى الدلول بنسبة ١ سم ، وأبطأ فى القراءة
٤ شهور عن نظيره الذى لم يتعرض للتدخين ، وأبطأ ٥ شهور فى القسدرات
الرياضية . وفى عام ١٩٨٣ وجدت العاملة الفنلندية دانتا كاليو أن الطفل
فى سن ١٤ سنة اذا كانت أمه تدخن أكثر من عشرين سجاير يومياً يكون أطول
أقل ٩٠ سم عن نظيره فى نفس السن والظروف ولكن أمه غير مدمنه .
وفى فترة الطفولة يكون تعرض الطفل للذخان بطريقة سلبية أى ليست
بارادته ولكن مع بداية المراهقة يكون التدخين بارادته ويعتبر مدخن
حقيقى ، وتستمر معه عادة التدخين طوال الحياة لأن تثبيت الصبغى بأى شئ
فى مرحلة المراهقة يكون تشبهاً عنيذا ويستمر معه فى فترة شبابه وفيما بعد
ذلك أيضاً .

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

" قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ "

سورة البقرة آية ٢٢

من بلاد عظيم

جامعة عين شمس
معهد الدراسات العليا للطفولة
قسم الدراسات الطبية

اعتماد الكيمياء^{علم} في الأطفال والمراهقين المبكرين

مقالة تمهيداً للحصول على درجة الماجستير
في دراسات الطفولة (قسم الدراسات الطبية)

مقدمة من

الطالبة / عزة صفى الدين البيلى

إشراف

أ. د / فدى كرم حفنى

أستاذ علم النفس وعميد معهد الدراسات
العليا للطفولة - جامعة عين شمس

د / محمد السيد الشوربجى

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جامعة عين شمس

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