

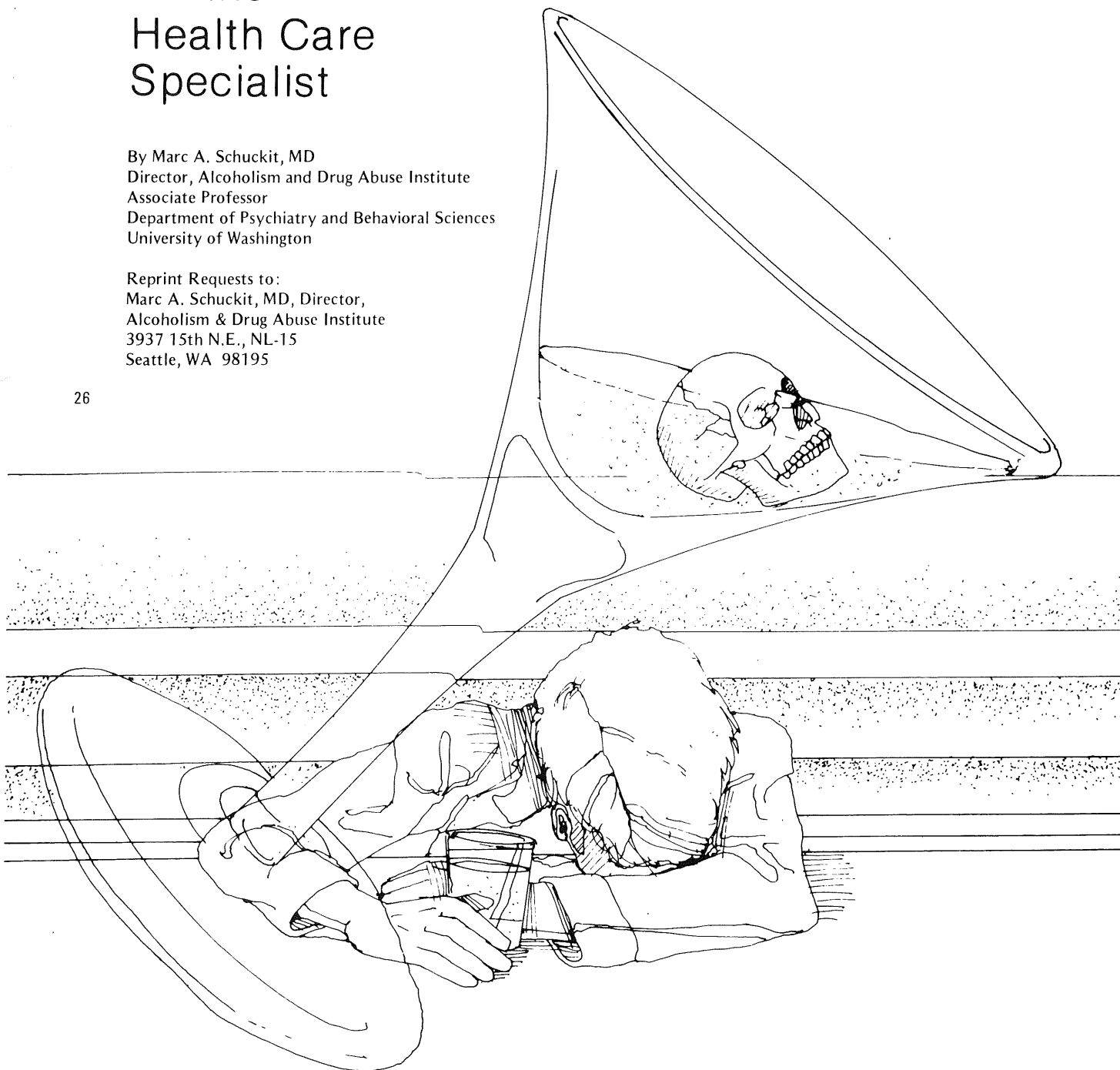
Alcohol and Alcoholism:

An Introduction
for the
Health Care
Specialist

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A LARGE PART of a health care specialist's working day is spent on alcohol difficulties and alcoholism. Almost eight percent of all emergency room patients have alcohol problems as part of their mode of presentation with even higher rates for accident victims (25 percent of whom are consuming alcohol) (21). As will be discussed in greater depth, alcohol problems increase the risk for most medical difficulties, and alcoholics themselves have high rates of medical disorders. It is my purpose to give you a brief introduction into the field with the hope that alcoholism will stop being just a name you apply to a person and begin to become a phenomenon you understand.

We will discuss separately, the problems caused by alcohol in all individuals and those more unique to alcoholics. It is hoped you will use this as an introduction to the area and take advantage of the variety of references which are available to you for future study.

THE EFFECTS OF ALCOHOL

Alcohol is a relatively simple substance which becomes widely distributed throughout the body. Its damaging effects are usually reversible, but adverse reactions can be seen in the body system. For purposes of our discussion, we will consider a shot of whiskey, a four ounce glass of wine, and a 12 ounce bottle of beer to be equivalent in their effects — even though this ignores the somewhat unknown area of the actions of congeners (the non-alcohol in alcoholic beverages . . . the things that make scotch taste the way it does) (1, 12).

We are all familiar with the ability of alcohol to cause intoxication — the subjective feeling of being "high", which for legal purposes is defined in most states as a blood alcohol concentration (BAC) of 100 mg.%. To achieve this level of intoxication, the average individual has to drink about five cans of beer, four mixed drinks, or four glasses of wine in an hour (1) (one can metabolize about one drink every hour). The 100 mg.% level is not magical. At blood doses as low as 20 mg.%, most individuals begin to experience muscular incoordination, changes in mood, and

some behavior problems. Many people do not stop drinking at this point and go on to experience some of the more potent, depressant and anesthetic effects of alcohol. The impairment in mind and body functioning is even more marked at blood levels up to 200 mg.%; between 200 and 300 mg.% there is usually marked inability to function; between 300 and 400 mg.% one experiences anesthesia; and concentrations about 400 mg.% can cause coma and death from failure of the respiratory centers (1). Many people die every day in the United States from lethal overdoses (i.e., taking in enough alcohol to stop their respirations).

Another major emergency problem related to alcohol is its ability to interact adversely with other drugs. Alcohol will potentiate all depressant-type drugs (including all sleep medications and minor tranquilizers, like Librium, Valium, etc.) and all anesthetics-type drugs. The legendary Hollywood cocktail consists of having a few too many drinks at a party and then going home and taking a number of sleeping pills, which results in enough respiratory depression to cause death.

The metabolism and actions of a wide variety of drugs are adversely affected by alcohol. These include potentiation of effects of any of the pain pills (including Darvon), a decrease in the effectiveness of anticoagulants and anti-convulsants, and an adverse potentiation of effects of antidepressants like Elavil and Tofranil (1). Individuals taking drugs for high blood pressure (like Ismelin or Aldomet) may find that their blood pressure drops when they stand up (orthostatic hypotension) when taking these drugs, and that it is much worse when they drink — this could have terrible effects on a person with poor heart functioning (1). Diabetics, on the oral hypoglycemic agents like Orinase, may find great difficulty in regulation of normal blood sugars when they drink (12). An adverse reaction from almost any drug can occur when individuals mix these drugs with alcohol resulting in emergency situations where chronically ill patients who had been stable find a loss in their health equilibrium when they begin drinking (1).

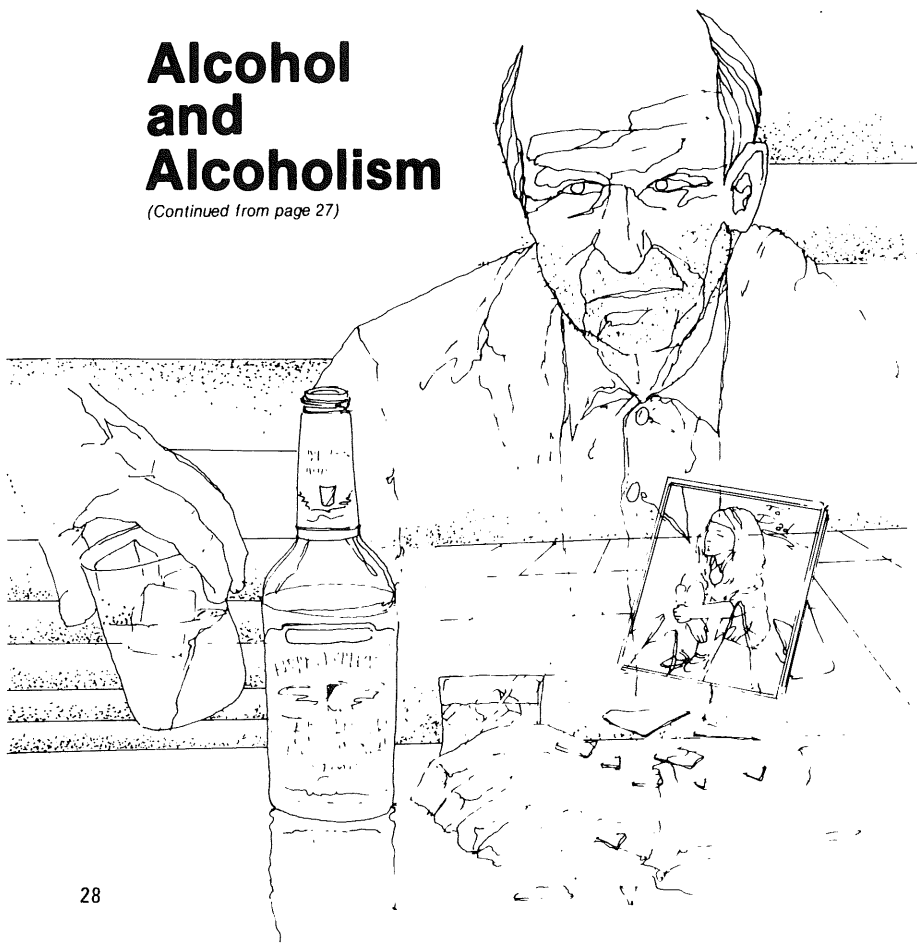
Even those individuals who are not taking medication may find a worsening of prior medical complaints when they drink. For instance, a person with an ulcer disease who has been doing well may find a return of his/her pain and even bleeding as a result of the increased acid secretion and decreased blood clotting caused by alcohol (12). People with poor liver functioning will find that even low doses of alcohol can do harm as their liver cells become swollen and filled with fat (13). Persons with pancreatic disease will find a worsening of their condition by the effects of alcohol in increasing the output of digestive juices while blocking the outflow of these juices from the pancreas (1). They might also find a deterioration of their blood sugar problems due to alcohol interference in the normal production of sugars in the body and their proper utilization in body tissues (1, 12). Alcohol also has adverse effects on circulation and heart functioning in normal people and it appears one cocktail can decrease the work efficiency of the heart in people with predisposing heart disease (6). There are other ill-effects of alcohol on the muscle systems, adrenal glands, nervous system — every body system (1, 12). Most of us, being healthy, will not become ill when we drink as these effects are reversible — but emergency situations might arise in individuals with chronic disorders when they attempt to add alcohol on top of their condition.

The discussion thus far has centered on the problems of drinking in non-alcoholic individuals. When people take large doses of alcohol regularly over a period of time, alcohol in itself poses a chronic condition — alcoholism. All problems we have discussed for the non-alcoholic apply equally well for the alcoholic, but with the alcoholic there are additional factors. The next section of this article will deal with the process of alcoholism — how it is defined, how frequently it occurs (i.e., its epidemiology), how it can be recognized, its course (i.e., its natural history), the properties of addiction, the chronic medical difficulties one can expect in alcoholics, and its treatment.

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ALCOHOLISM

Definitions — The numerous definitions for alcoholism overlap greatly. They can be paraphrased by stating that when alcohol means more to an individual than the problems it causes, this person is then an alcoholic or problem drinker (for our purposes here, we will use the terms synonymously). The three basic diagnostic schemes differ in outlining slightly different but overlapping problems associated with chronic alcoholic intake.

Some individuals define alcoholism based on quantity and frequency of drinking (2). Certainly, someone who is drinking a fifth of whiskey a day is an alcoholic by almost anyone's definition — the difficulty comes in obtaining reliable information on actual intake. This is a subjective phenomenon, complicated by the fact that many alcoholics might not want to remember how much they drink and the additional problem of the impairment in memory which occurs at rapidly rising blood alcohol levels (4).

Others define the alcoholic based on psychologic or physical addiction. Psychologic addiction (being unable to be comfortable without the drug) is a very

subjective approach which means different things to different people in different settings. Because it is so hard to define, it loses its effectiveness as a diagnosis. Physical addiction consists of the occurrence of tolerance (the need for higher and higher doses to obtain the same effect) and physical dependence (the occurrence of physical withdrawal symptoms when the drug is stopped too quickly) (1). Alcohol taken at high doses over a long period of time (as short as four weeks of alcohol on a research ward) will result in physical dependence (9), but many individuals whose lives are ruined both socially and medically by alcohol never reach the point of showing severe withdrawal symptoms. Therefore, while physical addiction is one valid approach to the definition of alcoholism, it tends to outline a more end-stage alcoholic individual, and thus ignores many people who are in need of help.

I favor a definition of alcoholism based on various social consequences. When an individual has a major life problem in any one of his four life areas, he would be labeled an alcoholic. Thus, if he had a marital separation or divorce; or two or more non-traffic arrests; or

physical evidence that alcohol had harmed his health; or a job loss or lay-off related to alcohol, he would be an alcoholic (15). In clinical settings, one can paraphrase these rules and use clinical judgment. For instance, an individual I know is drinking very heavily and has had two driving-while-intoxicated (DWI) arrests in the last six weeks would probably be considered an alcoholic even though he did not quite meet the research definitions.

The National Council on Alcoholism has presented criteria which attempt to include all three types of definitions (7). This compromise solution is worth looking at and does present a comprehensive overview of an approach to diagnosis. It should be emphasized, however, that all of the definitions have some validity and that the most important thing is that the specific definition utilized be clearly understood. Thus, alcoholism is not "hard to define," but one does have (as is true with any disorder without a chemical test to back up the diagnosis) several related but distinct approaches he can choose to follow.

Epidemiology — The pattern of drinkers in the general population is very different from the pattern for alcoholics. The percentage of the population who drink (an average of 68 percent of the population with a consumption per drinker of 2.7 gallons of absolute alcohol per year [2]) is higher for males, younger individuals, higher socioeconomic status persons, and Jews or Italians. The rate of alcoholism is highest for men over 40, from lower socioeconomic backgrounds, with low educations, Protestant or Irish Catholic.

Probably five to 10 percent of the adult male population is alcoholic (an estimated 9,000,000 problem drinkers) with higher figures for men in lower socioeconomic strata. The male/female ratio is about 4/1, but there is evidence this trend is changing as women increase their alcohol intake (16). If one wishes to find a group at exceptionally high risk for the diagnosis of alcoholism, it would be best to look on a medical or surgical floor of a hospital — somewhere between 20 and 35 percent of the average medical or surgical patients in both private and public hospitals qualify for the diagnosis of alcoholism (8).

Natural History of Alcoholism — One cannot make hard and fast rules which apply to every alcoholic. However, studies of groups of alcoholics have given data which allow us to make some generalizations which can be used as a yardstick against which you can gauge your understanding of a specific alco-

holic. For the average alcoholic, the onset of drinking is, or course, in the teens and it is probably not until the mid to late twenties that one can tell for sure that the patient is an alcoholic. Life problems (in the four diagnostic areas of family, police, health and job) begin in the thirties and the individual will probably seek treatment (if ever) around age forty. The average alcoholic will die fifteen years younger than the general population. The leading causes of death for alcoholics are: accidents, suicide (anywhere from 10 to 20 percent of alcoholics die by suicide), heart disease (with high blood pressure and high cholesterol), cancer (especially of the digestive tract), infections — including pneumonias, cirrhosis (only 10 percent of alcoholics have cirrhosis) and pancreatitis (17).

In the course of the disease, alcohol adversely affects all body systems. The following is an abbreviated overview of alcoholic morbid pictures by body systems (1, 12).

- 1) Blood producing — decreased production of white and red blood cells, platelets, and clotting factors along with abnormal and inefficient white cells.
- 2) Circulatory — increased rates of atherosclerosis and heart muscle disease.
- 3) Gastrointestinal — fatty liver/alcoholic hepatitis/cirrhosis, pancreatitis, increased rates of cancers.
- 4) Genital and Urinary — testicular shrinkage, increased rates of infection.
- 5) Respiratory — emphysema and cancer (probably related to the close correlation between alcoholism and heavy smoking).
- 6) Musculo-skeletal — muscle swelling (which can result in kidney damage due to the rapid release of muscle substance into the blood) and frequent fractures.
- 7) Nervous system — increased demand for and decreased amount of vitamins (especially thiamine) lead to neurologic syndromes such as Wernicke-Korsakoff's, along with alcohol dementia, chronic brain syndrome, and peripheral neuropathy (death of nerves in the hands and feet).

There are two additionally important things to remember about the course of alcoholism in the average patient. First, the usual alcoholic is a middle class male in his forties who has shown some degree of stability in his life up to the point of being diagnosed as an alcoholic. His usual course includes frequent pe-

riods of being dry from days to months. Thus, in the average year, he will have periods when he does not drink alcohol at all, that alternate with times when he drinks without getting into trouble but which almost always lead him to subsequent periods where alcohol becomes a major problem for him. In gauging the course of alcoholics, therefore, one must recognize that trouble-free periods from alcohol are to be expected in almost all alcoholic individuals (12, 18).

A second factor which is very important in dealing with alcoholics is to recognize that there appears to be a relatively high rate of spontaneous cure. In addition, as will be discussed in greater depth later in this article, there appears to be a high rate of response to treatment, no matter what the treatment is — seemingly a response to non-specific intervention. Because of this, it is probable that one-third of the alcoholics should permanently stop having trouble from alcohol sometime during their career (3, 14, 18). When one is dealing with high achieving individuals, who have families and jobs intact despite their alcohol problems, response to any kind of treatment might be as high as 70 percent (this comes from the usual report of industrial treatment alcohol programs of "cure rates" of 70 percent, no matter what their approach to treatment might be) (18).

The expected periods of doing better in the course of any alcoholic and the high rate of response to non-specific treatment modes need to be kept in mind whenever one is dealing with an alcoholic. The outlook is not hopeless. Most alcoholics will improve and many will stop having alcohol problems. The second implication to these findings, however, is that most rehabilitative treatments will look good and that one can only evaluate their true effectiveness by comparing them to what might have happened to the alcoholic had no intervention or a less risky or less costly intervention been used.

TREATMENT

Treatment of the alcoholic is divided into two phases — the first deals with the acute effects of alcohol and treatment of any withdrawal syndrome which might occur, and the second deals with attempts to help him go through his recovery process.

1) The Treatment of Alcoholic Withdrawal (19, 20)

In order to understand the treatment of withdrawal, it is important to get a general picture of the onset and course of the withdrawal syndrome

(1, 12). We are speaking here of withdrawal from a depressant-type drug, so much of what is described would be the same for other depressants such as most of the sleeping medications and antianxiety drugs like Librium or Valium. For alcohol, the syndrome begins within hours (about one-half day) after blood alcohol falls below a critical level — a level that would be different for each individual. It is important to note here that in order to enter withdrawal, an individual does not have to stop drinking, only decrease their blood alcohol level below normal. The syndrome consists of a mixture of any one or a combination of the following:

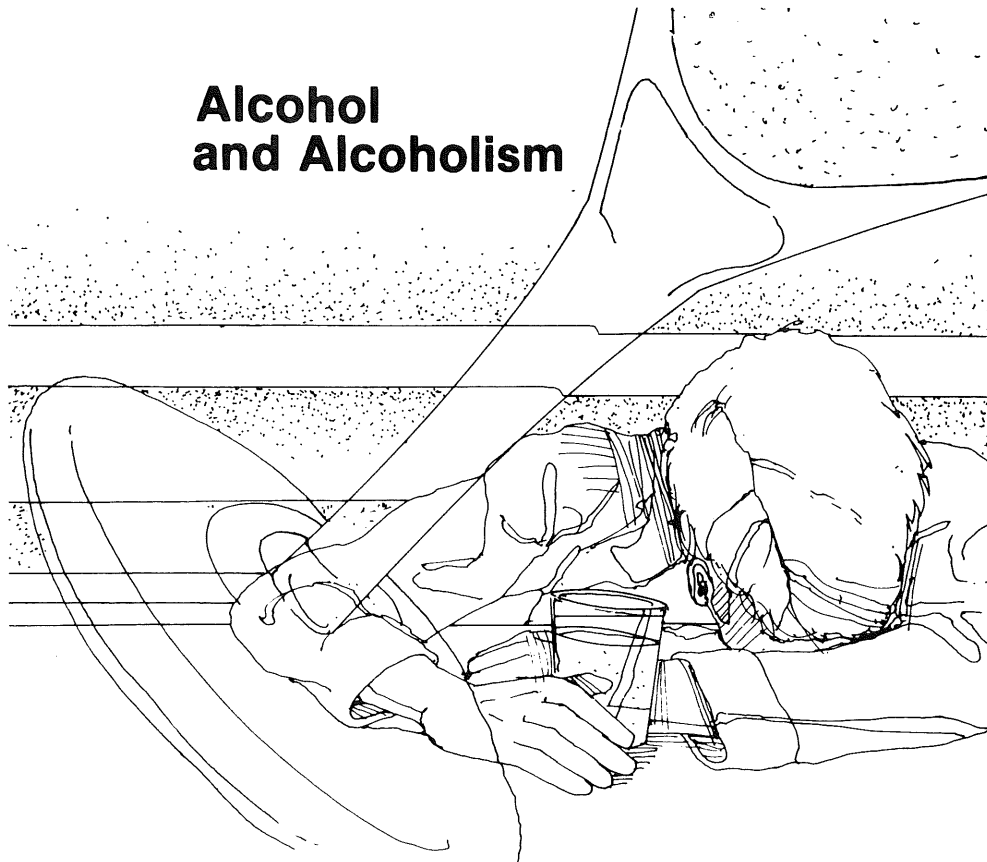
- a) Shakes — a very coarse tremor of the hands, face and tongue;
- b) Dysfunction of the autonomic nervous system, including an increased pulse, increased temperature, increased respirations, and a fluctuating blood pressure;
- c) A confusion or disorientation syndrome;
- d) Convulsions (these are rum fits and are unrelated to epilepsy — they could occur in anyone who has been drinking long enough, regardless of a history of brain damage);
- e) Hallucinations which are almost never visual, but usually auditory or tactile.

Some people, therefore, go through withdrawal experiencing only shakes; others have shakes and convulsions; others have hallucinations and convulsions, etc. The syndrome generally runs its course within three to five days.

Treatment of the syndrome is the same as that for withdrawal from any type of drug — the most effective regimen involves intoxication with a drug to which the individual is cross-tolerant (in this case, any member of the depressant drug class) and withdrawing them more slowly at a decrease in dosage of between 10 and 20 percent of the first day's dose daily. An alternate approach is a non-specific use of medications to help the individual feel more comfortable such as using major tranquilizers like thorazine — here, however, the incidence of delirium and convulsions can be moderately high (about 10 percent).

Of all the depressant drugs, the medication with the lowest level of respiratory depression, the lowest rate of production of hypotension, the safest effective to lethal dose ratio, and the one which can be given most safely both orally and intramuscularly is either Lib-

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rium or Valium. Using Librium, one would start off with first day doses ranging from 100 to 500 mg. a day depending upon the needs of the individual, with a decrease of approximately 20 percent per day over a five day period. Using this regimen and beginning the treatment before the onset of delirium or hallucinations, it should be possible to withdraw patients quietly on a medical ward with a negligible rate of convulsions, hallucinations, or delirium. However, once the confusion and disorientation has begun, one had probably best institute treatment with an antipsychotic drug like Haldol or Thorazine.

Just as important as the proper use of medications in the treatment of withdrawal is the necessity for an adequate physical examination. Many individuals enter alcoholic withdrawal because they are too ill to tolerate continuing intake of alcohol. These illnesses frequently include pneumonia (related to their vulnerability to infection), subdural hematomas (a bleeding underneath the covering of the brain related to increased bleeding tendency and frequent trauma), or internal bleeding. A fine physical examination is mandatory if one wishes to have an almost nonexistent rate of death during withdrawal.

In addition, it is important to give

general body supports, including adequate nutrition, rest and vitamins. One vitamin that is especially important to alcoholics is thiamine. It should probably be given in doses of 100 mg a day for two to three days after which general oral multivitamins can be given.

2) Alcoholic Rehabilitation (18, 19)

There are a wide variety of approaches to alcoholic rehabilitation too broad a scope to be discussed in this brief article. Alcoholism appears to respond to general supportive measures making the best treatments those which use good common sense in an attempt to avoid exposing the patient to risk. The following are some brief rules one might follow in trying to determine the best approach to rehabilitation:

- a) Because of the high rate of spontaneous remission and general response to any intervention, the efficacy of rehabilitation efforts can only be understood as part of controlled studies. All treatments look good because patients do so well on their own that the results must be compared to some standard in order to be understood.
- b) Almost every mode of therapy has been used in alcoholic rehabilitation including LSD, metronidazole (Flagyl), psychoanalysis, group therapy, hypnosis, etc.

Based on the precept FIRST DO NO HARM, most alcohol treatment programs use the following regime:

Detoxification followed by group therapy, Alcoholics Anonymous, good physical care, job and home placement efforts and Antabuse. There is no evidence that continued inpatient rehabilitation efforts are superior to outpatient therapy for the average patient once detoxification is completed. Of course, patients with serious medical disorders, those with few social supports and those who have done poorly in outpatient programs, may need longer term inpatient care. Specific treatment approaches include:

- 1) Antabuse (disulfiram) causes people to feel very sick when they drink so it works as an insurance policy that while taking this drug they will not return to alcohol on the spur of the moment. A daily 250 mg. tablet should cause an antabuse reaction if alcohol is drunk anytime in the next one to two days. The antabuse-alcohol reaction can involve serious vomiting and changes in blood pressure; so this drug should not be given to people with serious medical impairment.
- 2) Alcoholics Anonymous (5) groups are available in almost every community and can usually be found in the telephone book. They are excellent resources for initial patient referral as members are likely to know about other available places to get help.
- 3) I caution against the use of sleeping pills for outpatient alcoholics. Sleep will be poor for some months after alcohol is stopped (10) as part of the aftereffects of alcohol on the body. However, almost all sleeping pills lose effectiveness after two weeks (11) so they will not be much help and the alcoholic runs the danger of addiction to these drugs which in many ways resemble alcohol in the effects produced.
- 4) The same warnings are offered against the use of tranquilizers like Librium or Valium, etc. during outpatient rehabilitation.

References available upon request