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Relapse and Craving

There is evidence that approximately 90 percent of alcoholics are likely to experience at least one relapse over the 4-year period following treatment (1). Despite some promising leads, no controlled studies definitively have shown any single or combined intervention that prevents relapse in a fairly predictable manner. Thus, relapse as a central issue of alcoholism treatment warrants further study.

Similar relapse rates for alcohol, nicotine, and heroin addiction suggest that the relapse mechanism for many addictive disorders may share common biochemical, behavioral, or cognitive components (2,3). Thus, integrating relapse data for different addictive disorders may provide new perspectives for relapse prevention.

Impaired control has been suggested as a determinant for relapse, yet is defined differently among investigators. Keller (4) suggested that impaired control has two meanings: the unpredictability of an alcoholic's choice to refrain from the first drink and the inability to stop drinking once started. Other investigators (5,6,7,8) limit the use of "impaired control" to the inability to stop drinking once started. They suggest that one drink does not lead inevitably to uncontrolled drinking. Research has shown that severity of dependence affects the ability to stop drinking after the first drink (9,8,10).

Several relapse theories utilize the concept of craving. Use of the term "craving" in a variety of contexts, however, has led to confusion about its definition. Some behavioral researchers argue that the idea of craving is circular, hence meaningless, since in their view, craving can only be recognized retrospectively by the fact that the subject drank (11). They deemphasize physiological urges and stress the relationship between the behavior of drinking and environmental stimuli that prompt the behavior. On the other hand, Ludwig and Stark (5) find no problem with the term "craving": craving is recognized simply by asking whether a subject who has not yet drunk alcohol feels a need for it, much as one can inquire about another person's hunger before he or she eats. Ludwig and associates suggested that alcoholics experience classical conditioning (Pavlovian), by pairing external (e.g., familiar bar) and internal (e.g., negative mood states) stimuli to the reinforcing effects of alcohol (5,12,6). This theory suggests that craving for alcohol is an appetitive urge, similar to hunger, that varies in intensity and is characterized by withdrawal-like symptoms. The symptoms are elicited by internal and external cues that evoke memory of the euphoric effects of alcohol and of the discomfort of withdrawal.

Physiological responses to alcohol cues have been described. For example, research has shown that exposure to alcohol, without consumption, can stimulate an increased salivary response in alcoholics (13). Similarly, skin conductance levels and self-reported desire for alcohol were correlated for alcoholic subjects in response to alcohol cues

(14); the relationship was strongest for those most severely dependent. Alcoholics demonstrated significantly greater and more rapid insulin and glucose responses than nonalcoholics following the consumption of a placebo beer (15).

Several relapse prevention models incorporate the concept of self-efficacy (16), which states that an individual's expectations about his or her ability to cope in a situation will affect the outcome. According to Marlatt and colleagues (17,18,3), the transition from the initial drink following abstinence (lapse) to excessive drinking (relapse) is influenced by an individual's perception of and reaction to the first drink. These inves tigators formulated a cognitive-behavioral analysis of relapse, positing that relapse is influenced by the interaction of conditioned high-risk environmental situations, skills to cope with the high-risk situations, level of perceived personal control (self-efficacy), and the anticipated positive effects of alcohol. An analysis of 48 episodes revealed that most relapses were associated with three high-risk situations: (1) frustration and anger, (2) social pressure, and (3) interpersonal temptation (17). Cooney and associates (19) supported this model by demonstrating that, among alcoholics, exposure to alcohol cues was followed by diminished confidence in the ability to resist drinking.

Marlatt and Gordon (3,20) argue that an alcoholic must assume an active role in changing drinking behavior. Marlatt advises the individual to achieve three basic goals: modify lifestyle to enhance the ability to cope with stress and high-risk situations (increase self-efficacy); identify and respond appropriately to internal and external cues that serve as relapse warning signals; and implement self-control strategies to reduce the risk of relapse in any situation.

Rankin and colleagues (21) tested the effectiveness of cue exposure in extinguishing craving in alcoholics. The investigators gave severely dependent alcoholic volunteers a priming dose of alcohol, which had been shown to evoke craving (22). Volunteers were urged to refuse further alcohol; their craving for more alcohol diminished with each session. After six sessions, the priming effect almost completely disappeared. Volunteers who participated in imaginal cue exposure did not have the same outcome. This treatment was performed in a controlled, inpatient setting; the long-term effectiveness of cue exposure for diminishing craving after discharge remains to be demonstrated.

Chaney and associates (23) investigated the effectiveness of skills-training intervention to help alcoholics cope with relapse risk. The alcoholics learned problem-solving skills and rehearsed alternative behaviors for specific high-risk situations. The investigators suggested that skills training may be a useful component of a multimodal behavioral approach to prevent relapse.

A relapse prevention model for alcoholics (24) emphasizes a strategy that helps each individual develop a profile of past drinking behavior and current expectations about high-risk situations. The therapy promotes use of coping strategies and behavioral change by engaging the patient in performance-based homework assignments related to high-risk situations. Preliminary outcome data revealed a decrease in the number of

drinks consumed per day as well as in drinking days per week. Forty-seven percent of the clients reported total abstinence over the 3-month follow-up period, and 29 percent reported total abstinence over the entire 6-month followup period (25).

Disulfiram (Antabuse) is used as an adjunct to enhance the probability of long-term sobriety. Although patient compliance is problematic, disulfiram therapy has successfully decreased frequency of drinking in alcoholics who could not remain abstinent (26). A study of supervised disulfiram administration (27) reported significant periods of sobriety of up to 12 months in 60 percent of patients treated.

Preliminary neurochemical studies have revealed that decreased levels of brain serotonin may influence appetite for alcohol. Alcohol-preferring rats have lower levels of serotonin in various regions of the brain (28). In addition, drugs that increase brain serotonin activity reduce alcohol consumption in rodents (29,30).

Four studies have evaluated the effect of serotonin blockers--zimelidine, citalopram, and fluoxetine on alcohol consumption in humans, each using a double-blind, placebo-controlled design (31,32,30,33). These agents produced a decrease in alcohol intake and, in some cases, a significant increase in the number of abstinent days. These effects, however, were found among small samples and were short lived. Controlled trials in larger dependent populations are needed before serotonin blockers can provide hope as a possible adjunct for relapse prevention.

In both pharmacological and behavioral prevention strategies, it is important to consider severity of alcohol dependence as a critical factor (9,10,20).

Relapse and Craving - A Commentary by NIAAA Director Enoch Gordis, M.D.

The primary goal of alcoholism treatment, as in other areas of medicine, is to help the patient to achieve and maintain long-term remission of disease. For alcohol dependent persons, remission means the continuous maintenance of sobriety. There is continuing and growing concern among clinicians about the high rate of relapse among their patients, and the increasingly adverse consequences of continuing disease. For this reason, preventing relapse is, perhaps, the fundamental issue in alcoholism treatment today.

Modern science, both biological and behavioral, has explored a number of different leads in the quest to prevent relapse. These range from pharmacological agents, such as the serotonin uptake blockers and disulfiram, to behavior constructs, such as cue extinction and skills training. Although these are promising leads that one day may improve significantly the chances of alcohol dependent persons to continue long-term sobriety, there are no definitive answers yet to this troubling aspect of alcoholism treatment. For example, the interesting work on pharmacological agents to help prevent

relapse evolved from the study of brain receptors, and suggests that serotonin may diminish an alcoholic's desire or craving for alcohol. This research, however, must be confirmed by properly conducted controlled clinical trials before widespread application to treating alcohol dependency. Similarly, behavioral approaches have been well described by the talented scientists who undertook the initial studies; however, evidence of the effectiveness of these approaches in preventing relapse in dependent drinkers has not been documented in adequate controlled trials.

Although we are not yet at the point where we can state definitively what works best in preventing relapse, I firmly believe that we are on the brink of a new period in alcoholism treatment research that ultimately will help us to develop this knowledge. For the present, therapists should examine critically the evidence for new nonpharmacological approaches before initiating them. Similarly, good clinical wisdom should discourage the use of unproven pharmacological agents to prevent alcoholism relapse until the efficacy of using such agents in this regard is proven.

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