Prevalence of Alcoholism in a Family Practice Center

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One hundred forty-seven adult patients seeking care at a university family practice center were screened for alcoholism. Approximately one half were given the Michigan Alcoholism Screening Test (MAST), and the rest were interviewed by a trained interviewer who administered the MAST and a shorter questionnaire (the CAGE) and used her overall clinical impression to gauge their likelihood of being alcoholic. The two groups were demographically similar, as were the results of the screening. There were 28 patients (19.1 percent) with a MAST score greater than 5, and 24 patients (16.3 percent) were thought to be alcoholic. The prevalence of alcoholism was much higher in men ($P < .001$), but no other demographic differences were found. Twenty-four clinic charts of patients with alcoholism identified in the study were reviewed for evidence of physician awareness of alcohol abuse, but in only 12 was alcohol use mentioned at all, and in only two was alcoholism diagnosed. These findings are consistent with prior published reports of incidence of alcoholism in other settings.

A number of investigators have studied the prevalence of alcoholism in inpatient and emergency medical settings and have found rates ranging from 8.7 to 87.5 percent.[1-17] This variability is accounted for in part by the different settings and patient populations studied. Inpatient psychiatric units often had high prevalence rates, 30 to 41 percent,[9,12,13] as did emergency rooms, with rates ranging from 20 to 42 percent.[8,14,15] A study by McCusker et al[6] of a hospital in an urban ghetto showed the remarkably high rate of 47 percent. Chakerian and Schenkel's study[10] of a Veterans Administration Hospital intensive care unit found rates of alcoholism of 35 percent. While Rutherford's study[15] of patients presenting with head injury found 42 percent with significant blood alcohol levels, Abbott et al[11] reported that 87.5 percent of patients with pancreatitis on a general medical ward were found to be alcoholic.

Differences in prevalence rates also vary depending on method of diagnosis. Alarmingly, physician diagnosis is the least sensitive method no matter what the setting. The finding of low physician sensitivity is reinforced by comments from papers, using other methods of diagnosis, indicating that physician diagnosis is uncommon and referral for treatment is even less common.

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A study of prevalence rates in a military setting by Maletsky and Klotter[14] used physician diagnosis, but only after an intensive educational effort to increase physician awareness of factors involved in diagnosing alcoholism and the need for better medical diagnosis. Physicians in their study found prevalence rates of 17.1 to 20 percent. The use of blood alcohol levels for diagnosis of alcoholism is more sensitive, and although not an absolute indicator of alcoholism, an elevation does suggest medical morbidity secondary to alcohol abuse.

Bernaudt et al[17] compared the sensitivity and specificity of detecting alcoholism using a pattern of results on selected laboratory tests (mean corpuscular volume, urate, cholesterol, high-density lipoproteins, alkaline phosphatase, aspartate aminotransferase, SGPT, gamma glutamyl transpeptidase, and glutamate dehydrogenase); both brief questionnaires (MAST, CAGE); and more elaborate questionnaires and interviews. They found the laboratory tests at best only one third as sensitive, although they had high specificity (84 to 99 percent). The missed diagnosis of alcoholism occurs in part because of the social stigma and prejudice about who and what constitutes an alcoholic.[18,19] Blane et al[20] demonstrated convincingly that both the presence of an acute, accepted "medical problem" and evidence of "social connectedness" diminished physician diagnosis of alcoholism. Even when the diagnosis was made in such patients, referral for treatment was less likely.[10,11,20]

There are few studies of rates of alcoholism in American outpatient medical settings. Wilkins[21] reviewed some studies done in Britain. He reports very low rates of 0.1 to 1.8 percent even when using focused interviews and questionnaires.

For screening and diagnosis, brief structured questionnaires such as the MAST and the CAGE are quite efficacious without loss of sensitivity or significant specificity.[7,9,12,22-25] The MAST is a series of 25 questions focusing primarily on the consequences of drinking. The CAGE is a four-question sequence: "Have you ever felt you should cut down on your drinking?" "Have people annoyed you by criticizing your drinking?" "Have you ever felt bad or guilty about your drinking?" "Have you ever had a drink first thing in the morning (eye-opener) to steady your nerves or get rid of a hangover?"

The current study focuses on several issues:

1. How prevalent is alcoholism in an outpatient medical setting?
2. Does having a skilled, experienced interviewer administer the MAST as part of a focused interview, rather than simple administration of the MAST without an interview, add more sensitivity and specificity to the screening and diagnosis process?
3. How adequately is alcoholism being diagnosed, confronted, and treated as judged from patient charts?
4. How does information from patient charts in presenting complaints, medical history, and clinic notes relate to the diagnosis of alcoholism?

Methods

One hundred forty-seven adult patients seeking care at a university family practice center on Tuesdays and Wednesdays during the months of July and August 1982 were divided into two study groups by alternate assignment. One group received the MAST to complete without an interview; the other group was interviewed by a graduate student in counseling who had just previously worked for one year with patients in an outpatient alcoholism treatment clinic. She administered the CAGE and the MAST in the course of her interviews and subsequently rated each patient into one of three categories based on her overall clinical impression: "A," no alcoholism; "B," possible or probable alcoholism warranting further evaluation; "C," definite alcoholism warranting more complete evaluation and treatment.

Both groups were given questionnaires to obtain demographic data. The MAST or interview was done while the patient waited for the physician appointment. The charts of the patients with "definite alcohol problems," as defined by a MAST score greater than 5 or by the interviewer's rating "C," were later reviewed for mention of alcoholism, alcohol abuse, alcohol use, presenting complaint, treatment notes, and other pertinent medical data. This review was done jointly by a family physician and a psychiatrist.

Although it is not possible to make demographic comparisons of the study population to the clinic population as a whole, the arbitrary selection of two days of the week and the random assignment of patients into the study groups should tend to eliminate selection bias. The interviewer ap-

Table 1. Demographic Characteristics of Patients Interviewed vs Those Screened by MAST Only

	Interviewed (%)	MAST-Only (%)
Male	27.7	28.0
Female	72.3	72.0
Average age (yr)	42.1	38.2
More than high school education	64.0	72.0
Employed	41.6	56.0
Married*	40.3	58.7
Non-Hispanic	80.6	86.7
Hispanic, black	19.4	13.3
Third-party payment	66.7	64.0

*($\chi^2 = 8.44$, 3 *df*, $P < .05$)

proached all adult patients being seen during the clinic sessions, and virtually all agreed to be interviewed or fill out the questionnaire.

Results

The two study groups were comparable with the exception that the MAST-only group had more married subjects (58.7 vs 40.3 percent, $P < .05$). The MAST-only group also had a slightly higher level of education and employment, but these were not statistically significant (Table 1). The two study groups were also comparable in terms of the results. Twenty percent of the MAST-only group had scores greater than 5, and 18.1 percent of the interviewed group had a score of greater than 5.

Of the 72 subjects for whom the interviewer's diagnosis was compared with the MAST and CAGE score, there was little disagreement. With a score of more than 5 on the MAST compared with the interviewer's category of "C," the sensitivity of the MAST was 83.3 percent, and the specificity was 95 percent. If a MAST score of greater than 5 was compared with an interviewer category of "B" or "C" (a screening mode), the specificity dropped to 57 percent. With MAST criteria lowered to "any positive score" (greater than 1), and compared with the interviewer's "B" or "C" (ie, "screening" mode instead of a "diagnostic" mode), the sensitivity improved to 90 percent, but the specificity of the MAST dropped to 80 percent.

In this study the CAGE was found to be less sensitive and less specific than the MAST. Using a cutoff of more than 2 "yes" answers on the CAGE and comparing that with the interviewer's rating of "definite alcoholism," the CAGE had a sensitivity of 64 percent and a specificity of 72 percent. Comparing screening modes (interviewer score of "B" or "C" to CAGE of more than 1) the sensitivity increased to 90 percent and specificity to 75 percent.

In the total sample of 147 patients, 28 (19.1 percent) scored greater than 5 on the MAST. Excluding patients who received scores greater than 5 because of attendance at an Alcoholics Anonymous (AA) meeting as a student or spouse and adding one the interviewer put in category "C," 24 (16.3 percent) of the patients attending this outpatient clinic had a definite alcohol problem. The only significant demographic difference in the alcoholic group was sex. Whereas men made up only 28 percent of the total population screened, they made up 56 percent of the alcoholic group vs 22.1 percent of the nonalcoholic group. This difference has a P value of $< .001$.

On the chart review there were 30 patients with a MAST score greater than 5 or an interview score of "C." As one chart was missing and five were excluded as false positives (attended AA meeting as a student or spouse), 24 charts were reviewed. Twelve charts had no mention of use or misuse of alcohol at all. In the 12 charts in which alcohol use was addressed, 7 indicated there was no alcohol misuse, and only 2 definitely diagnosed alcoholism; only 1 of those 2 clearly followed the patient's progress and attempted to address the alcoholism in an ongoing manner. Although the physicians

did not diagnose alcoholism, in 48 percent of the charts there was a complaint or medical history in which alcohol abuse was a potential contributor to the patient's poor health (ie, insomnia, ulcer, post-gastrectomy status, pancreatitis, "nervous stomach," anxiety, depression).

Discussion

The prevalence of alcoholism (16.3 percent) found in this study indicates that outpatient as well as inpatient medical settings are fertile sources for the identification of alcoholism. Although male patients were more likely to be alcoholic (34.1 percent), 10.4 percent of the female patients attending the clinic were also alcoholic as identified by the MAST and interview.

The time and expense of a skilled interviewer seemed to be unnecessary for purposes of simple screening. If the MAST is used in a screening mode (any positive score), only 10 percent of the patients needing further evaluation or treatment are missed. Indeed, a "yes" answer to any CAGE question had the same sensitivity. The interviewer found that most patients were open to discussion of their drinking habits even if they scored high on the MAST, CAGE, or interview rating. It is possible that many of these people were still early in their alcoholism and more amenable to treatment. Although the debate on exactly what constitutes alcoholism will continue, it is clear from this and the previous studies cited that asking simple questions is extremely useful in determining whether further discussion of a patient's relationship to alcohol is needed. It is also clear that those questions are not being asked as frequently as they should by physicians.

Since questions about alcohol use were not routinely asked in this clinic, and since the alcoholic group differed demographically only in terms of sex from the nonalcoholic group, it is not surprising that physician diagnosis of alcoholism is so rare. However, if not surprising, it is of major concern that almost one half of the alcoholic patients had current or past medical problems that should have triggered the physician to ask about the role of alcohol in the person's health problems. Since one third of the alcoholic patients presented in this study with such problems as routine checkup, Pap smear, or vaginitis, there is a need to screen every patient for alcoholism at least once and, perhaps, every few years as life changes may convert a "social drinker" into an alcoholic. The long-term social and medical consequences of alcoholism demand that family physicians, who should offer comprehensive health care, develop an increased awareness of how patients in their practices use alcohol.

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