

Screening for Alcoholism in a Community Hospital

Kevin M. Sherin, MD, Zdzislaw H. Piotrowski, MS, Susan M. Panek, MD,
and Martin C. Doot, MD
Chicago and Berwyn, Illinois

A study was conducted in a community hospital to assess the prevalence of alcoholism, to identify physician referral patterns after being notified that their patients received positive scores on an alcoholism-screening questionnaire, and to address the validity of the administered patient-screening questionnaire. Of 396 patients who completed the questionnaire, 14 percent (56) had positive scores on the Michigan Alcoholism Screening Test (MAST). Men were more likely than women to have scores indicative or suggestive of alcoholism. The hospital services with the highest percentage of patients with MAST positive scores were orthopedics, 18 percent; surgery, 19 percent; and medicine, 14 percent. Nineteen percent of those who drank alcohol had positive MAST scores. Requests for alcoholism consultation were made for only 2 of the 56 patients. A chart audit revealed that the diagnosis of alcoholism was recorded in 5 of the 56 MAST-positive patients' charts. Results are compared with other similar studies.

Diagnosing the disease of alcoholism in its early stages should be a major concern for all physicians. Estimates of alcohol-related deaths per year in the United States run as high as 200,000.¹ Cirrhosis of the liver, which is mainly due to alcoholism, remains the seventh leading cause of death.² A number of hospital surveys have demonstrated, however, that physicians remain hesitant in diagnosing problems of chemical dependency.³ Many reasons have been offered to account for the relatively

high rate of underdiagnosis of alcoholism, including physician attitudes, lack of training in diagnosis of alcoholism, and assumption of disallowal of hospital payment by insurance companies.^{4,5}

Another issue of concern to physicians is the treatment of alcoholism. Investigators have repeatedly shown that many physicians have attitudes which affect their willingness to make use of varied treatment modalities.⁵ Physicians repeatedly question the purported efficacy of those treatment strategies, and their attitudes may inhibit referrals.⁵ Mogar et al⁶ reported that experience is more powerful than persuasion in altering physicians' attitudes. It would appear that integrating an alcoholism treatment experience in the training of young physicians could have a substantial long-term impact. This was the experience in one family practice residency program.⁷ Educating residents to the early signs and symptoms of alcoholism, as well as encouraging self-assessment of attitudes, appeared to be an effective means to begin to address the problem.

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In 1973 the director of a family practice residency training program in a suburban community hospital near Chicago developed an inpatient alcoholism treatment center (ATC) where residents receive intensive experience and training. It soon became clear that national trends about the prevalence of alcoholism among inpatients and the reluctance or inability of hospital physicians to diagnose and treat patients for alcoholism applied to this community hospital. A survey was needed to identify the extent of the problem, that is, the prevalence of undiagnosed and untreated alcoholism, especially when it might not be a primary or secondary diagnosis. The family practice residency program was in a unique position to address the problem of alcoholism in this hospital. The director of the hospital's ATC unit, who was also the family practice inpatient director, ensured that residents had consistently valuable training in alcoholism.

A study was conducted in January 1979 in the community hospital to assess the prevalence of undiagnosed alcoholism and the varying rates of alcoholism among patients in different areas of the hospital. Also studied were physicians' responses and referral patterns after being notified that their patients received positive scores on an alcoholism-screening questionnaire to diagnose alcoholism and discuss quality of treatment rendered to those hospitalized patients.

Methods

Three surveys were conducted. The surveys and the types of data collected and analyzed were the following: (1) a patient survey in which hospital patients were administered a questionnaire called the Michigan Alcoholism Screening Test (MAST)⁸; (2) a physician survey in which were surveyed physicians' responses to being notified that their patients had high scores on the MAST; and (3) a medical chart audit in which charts of MAST-positive patients were reviewed using pre-defined criteria for alcoholism.

The MAST is a questionnaire made up of 25 behavioral description items in a "yes-or-no" format. It was first used by Selzer in 1967 and was further extensively validated⁸⁻¹⁸ to provide a meaningful and discriminating quantitative index for the detection of alcoholism among hospitalized patients. This instrument has been successfully

demonstrated as an adjunct to the physician's interview and examination in screening for patients with possible alcoholism.¹⁷ The MAST questionnaire has been shown to be a superior screening tool when compared with social or legal records.¹⁸ Analysis of the responses to the 25 items puts each patient into one of four groups. Those who drink alcohol are assigned to one of the following three groups: *nonalcoholic*, based on a score of three or less; *suggestive of alcoholism*, based on a score of four; and *alcoholism indicated*, based on a score of five or more. The fourth group, called *nondrinkers*, consists of patients who reported they do not drink alcohol. In applied and research settings a MAST score of four or more is regarded as a "positive" indicator of alcoholism.^{4,10,16}

During eight consecutive days in January 1979, two family practice residents (KS,SP) administered the MAST to patients within 24 hours of admission to the hospital. Selected were those patients aged 18 years of age and older who were able to complete the questionnaire with minimum assistance. Specifically excluded were those admitted to psychiatry, the ATC, and the intensive care units of the hospital. Patients were provided with a brief explanation of the purpose of the MAST. The hospital medical and dental staff gave prior approval to conduct the patient survey. Patients' responses were then divided into two groups: those completing the MAST, and those not completing the MAST because of refusal, unavailability, or inability.

A follow-up survey was conducted of physicians' responses to the information that their patients' scores were suggestive or indicative of alcoholism (a score of four or more). Immediately after administering and scoring the MAST, one of the two residents notified the physician of the patient's MAST score and its interpretation on a specially prepared feedback form attached to the patient's chart. The physician's feedback form included space to answer the following questions: Do you agree with the interpretation of the MAST score? Do you want consultation, or will you handle the problem yourself? Have you discussed alcohol use with your patient in the past?

Finally, a medical chart audit was performed on the medical records of the MAST-positive patients to provide data to address the issue of the validity of the MAST in this particular setting and to assess

Table 1. Distribution of Adult Patients by Hospital Service On the Basis of MAST Scores

Hospital Service	Completed MAST No.	Non-Drinkers No. (%)	Drinkers No. (%)	Breakdown of Scores for Drinkers		
				Score: 0-3—Nonalcoholic No. (%)	Score: 4—Suggestive of Alcoholism No. (%)	Score: 5—Indicative of Alcoholism No. (%)
Orthopedics	50	10 (20)*	40 (80)	31 (62)	1 (2)	8 (16)
Surgery	94	22 (24)	72 (76)	54 (57)	4 (4)	14 (15)
Medicine	134	43 (32)	91 (54)	72 (54)	7 (5)	12 (9)
Obstetrics	59	14 (24)	45 (76)	40 (68)	0 (0)	5 (8)
Gynecology	59	11 (19)	48 (81)	43 (73)	2 (3)	3 (5)
Total	396	100 (25)	296 (75)	240 (61)	14 (4)	42 (11)

*Percentages are based on the number of patients who completed the MAST in that hospital service

the quality of treatment for alcoholism. The criteria for alcoholism, initially adapted from an article by West,¹⁹ were formalized in the Division of Family Practice and approved by the entire hospital medical and dental staff. The chart audit included assessment of recorded history of drinking and state of intoxication at admission, history of alcohol-related disease, treatment rendered, discharge status, complications, and laboratory abnormalities related to alcohol use.

Results

Of 753 patients admitted into the hospital during the 18-day patient survey period, 572 (75 percent) were selected to complete the MAST questionnaire. One-hundred eighty-one admitted patients were excluded for one of the following reasons: unable to complete the MAST, less than 18 years of age, or admitted to psychiatry, ATC, or intensive care units. Of the 572 patients selected to complete the MAST, 396 (69 percent) actually completed the questionnaire. Among the 396 patients surveyed, 144 (36 percent) were men and 252 (64 percent) were women. Sixty-three percent (251/396) were married and 18 percent (71/396) were widowed. There was no evidence of statistically significant differences between patients eligible to participate in the study and patients completing the MAST by sex, marital status, and age. The patients who completed the MAST represented the selected adult hospital patient population on these characteristics. Of the 176 (31 percent) patients who did not complete the MAST, 40

(7 percent) refused, and 136 (24 percent) were unavailable to complete the questionnaire.

Table 1 presents the number and percentage of MAST-positive patients on the various hospital services. Of the 396 patients who completed the MAST, 25 percent were nondrinkers and 75 percent were drinkers. Fifty-six patients (14 percent) were identified as MAST-positive. The overall prevalence of patients with MAST scores indicative of alcoholism was 11 percent (42) and with scores suggestive of alcoholism, 4 percent (14). Nineteen percent (56) of the drinkers had scores indicative or suggestive of alcoholism. An examination of the characteristics of the 56 MAST-positive patients revealed the following: There were twice as many men ($n = 38$) as women ($n = 18$); 22 (39 percent) were 18 to 29 years of age; 32 (57 percent) were married; 16 (29 percent) were blue-collar workers; 17 (30 percent) were white-collar workers; and 23 (41 percent) were unemployed or retired. Forty (71 percent) had union or group insurance, whereas only 5 (9 percent) used public aid for medical payment. When compared with all patients who completed the MAST, men were more likely than women to have scores indicative or suggestive of alcoholism ($\chi^2 = 26.5$, $P < .001$); and single and divorced patients were more likely than married and widowed patients to have scores indicative or suggestive of alcoholism ($\chi^2 = 8.3$, $P < .05$).

The hospital services with the highest percentages of patients with MAST-positive scores were orthopedics, 18 percent; surgery, 19 percent; and medicine, 14 percent. The lowest percentages

were on the obstetrics and gynecology services, each with 8 percent. The percentage of men with MAST-positive scores was substantially higher than the percentage of women with MAST-positive scores for the orthopedic service (21 percent vs 6 percent), and significantly higher for medicine (23 percent vs 8 percent) and surgery (29 percent vs 7 percent) services. Overall, 14 percent of the responding patients were problem drinkers, and 19 percent of the identified drinkers were problem drinkers.

When demographic characteristics of MAST-positive patients were further examined, several clusters of patients emerged. One group consisted of younger men who were involved with trauma or acute alcohol intoxication. Another group consisted of older patients with chronic illnesses, ie, peptic ulcer, cirrhosis, hypertension, or gout. Interestingly, a third group was identified that consisted of elderly women who were widowed and did not have alcohol-related diagnoses.

Analysis of feedback forms in the physician survey revealed the following: for the 56 MAST-positive patients, 42 physician forms were returned, of which 28 had no response (were blank). Of the 14 physician responses, 12 indicated preference for personal follow-up and 2 requested consultation. All 14 responses were from primary care physicians, and 9 of the 14 were from family physicians. A separate analysis indicated that primary care physicians were much more likely to respond than nonprimary care physicians (24 of 32, vs zero of 10 specialists, $\chi^2 = 4.98$, $P < .03$). Comments made by physicians on the response form provided additional information. Five of the physicians responding reported that they had discussed the use of alcohol with their patients prior to the study. All five were family physicians. All 14 physician responses indicated that they would now discuss alcohol use with their patients in light of the new data. Eight of the respondents felt that their own follow-up would be sufficient. Only two requests for consultation were received, both from the same first-year family practice resident. Of the physicians not requesting consultation, six stated that they would pursue the matter themselves. One stated the patient refused treatment for alcoholism and two disagreed with the diagnosis of alcoholism. One physician noted that his patient was abusing more than one drug.

The chart audit revealed that the diagnosis of

alcoholism was recorded in 5 of the 56 MAST-positive charts. Two of the five charts revealed no deficiencies when subjected to the audit criteria for alcoholism, two charts revealed that there was no record of treatment for alcoholism for these two patients, and the fifth showed that the alcohol-specific treatment for the patient was judged deficient according to the criteria.

Further information was extracted from the records of the remaining 51 MAST-positive patients. Twenty-one records contained information that could be considered an indicator of the diagnosis of alcoholism, for example, a history of regular heavy alcohol consumption, signs or symptoms of withdrawal (minor or major) while hospitalized, elevated liver enzymes, macrocytosis, thrombocytopenia, and possible alcohol-related diagnoses. The mean MAST scores for the 21 patients was 15.11. The medical records of the 30 remaining MAST-positive patients did not contain an adequate drinking history to make any judgment about the validity of the MAST score. As previously noted, the MAST is a screening test designed to identify alcoholism before it is an obvious problem. This group of 30 patients had a mean MAST score of 6.03. These results add further support to the validity of the MAST questionnaire in the community hospital.

Discussion

This study addressed the issue of diagnosis and treatment of alcoholism by physicians in a community hospital setting. Several important observations were made. Results confirmed earlier work on the prevalence of alcoholism in community hospitals. In addition, several services identified in the hospital had substantially higher rates of suspected alcoholism. Noted were significantly higher rates for patients on the orthopedic, surgery, and medicine services. The relationship of alcoholism with trauma, which may have accounted for the relatively higher rates on the orthopedics and surgery services, is well documented.²⁰⁻²³

The MAST test has been demonstrated to have a high degree of sensitivity and specificity.⁸⁻¹⁸ Ongoing research demonstrates that the number of false negatives and false positives generally offset one another. The implication of this finding is that prevalence rates based on positive MAST scores

accurately reflect true prevalence rates in the hospital. Surveys of patients similar to the one completed in this study have documented a 10 percent overall prevalence rate indicative of alcoholism and a 3.5 percent rate of suspected alcoholism.¹⁷ Also, a male-to-female ratio of MAST-positive patients of 18 percent to 5 percent has been found in this study, further substantiating the "classic" 3 to 1 ratio.¹⁷ In this study, the prevalence rates were generally higher overall, specifically so for men in the orthopedics, medicine, and surgery services.

Another important facet of this study was the physician survey, the analysis of the responses of those physicians whose patients were MAST positive. The results suggested there was little interest in the results of the MAST test in the high prevalence areas of orthopedics and surgery. As cited earlier, physicians' negative attitudes and lack of training in dealing with patients with chemical dependency seem to be interrelated.⁵⁻⁷ In this study, the one physician, a resident, who consulted the alcoholism counselors on his two MAST-positive patients may reflect some specific training received in alcoholism that was part of the family practice residency program. The consultation request rate in this study was even lower than that reported by Westermeyer et al,²⁴ who reported that one third of the physicians responding made requests for referrals. In this study the physicians who chose to deal with the MAST-positive patients themselves demonstrated reluctance to record the diagnosis and treatment of the disease in the medical record. In the records in which the diagnosis was recorded, three of five charts did not meet the accepted hospital standard for alcoholism treatment.

The Minnesota study²⁴ found two distinct clusters: a younger age group, aged 17 to 29 years, married, with mostly psychiatric and acute medical problems, and an older group with medical, neurologic, and surgical problems. This study identified an additional small group of elderly widows. Thus clinicians should be aware of alcoholism in the elderly as well.²⁵

Lack of knowledge about alcoholism and its treatment can interfere with proper referral and treatment of patients with this illness. With more clinical exposure specific to substance abuse during the residency, family physicians can play an active role in the diagnosis and treatment of pa-

tients with alcoholism and in the education of their colleagues regarding alcoholism diagnosis, referral, and treatment.

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