PREVALENCE OF ALCOHOL PROBLEMS IN GENERAL PRACTICE: AN EXPERIENCE FROM SOUTHERN ITALY

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Abstract — The Michigan Alcoholism Screening Test (MAST) and the response to a question about heavy alcohol consumption were used to assess the prevalence of alcohol problems in consecutive patients (77 males and 46 females) consulting a general practitioner in an urban area in the South of Italy (Castellammare di Stabia). Alcohol problems. which were defined by a cut-off score of 5 on the MAST and/or by heavy alcohol consumption (corresponding to at least 60 g of ethanol daily for males and 36 g of ethanol daily for females for at least 2 years). were identified in 54 patients [43 9% : 95% confidence interval (CI) 35.0-53.1%]. 45 males (58.4%. 95% CI 46.6-69.6%) and nine females (19.6%. 95% CI 9.4-33.9%). The prevalence of MAST positive patients was 32.5% (95% CI 24 4-41 6%) in the total patient sample. 45.5% (95% CI 34.1-57.2%) among males and 10.9% (95% CI 3.6-23.6%) among females. The question about heavy alcohol consumption had a predictive negative value of 97.2% (95% CI 90 2-99 7%) and a predictive positive value of 73 1% (95% CI 59 0-84 4%) in relation to MAST positive patients. It is suggested that general practitioners should incorporate this question about heavy alcohol consumption as a screening question in order to detect alcohol problems and give advice regarding reduction of alcohol consumption.

INTRODUCTION

Excessive drinking, alcohol abuse and alcohol dependence lead to medical and social problems (Royal College of Physicians of London. 1987). The increased mortality associated with excessive alcohol consumption is well established (Grønbak et al.. 1994; Fuchs et al.. 1995). However. physicians often leave alcohol problems undetected (Murphy, 1980; Barrison et al.. 1980; Nielsen and Gluud, 1992; Nielsen et al.. 1994; Rambaldi et al.. 1995).

There are a number of methods by which one can detect alcohol problems (Nielsen et al.. 1994). Among the best studied is the Michigan Alcoholism Screening Test (MAST) (Selzer, 1971). The reliability and validity of the MAST in detecting alcohol problems are well-established (Gibbs. 1983; Hedlund and Vieweg. 1984; Storgaard et al.. 1994). Magruder-Habib et al. (1993) showed that at the recommended cut-off score of 5 (Storgaard et al.. 1994), the MAST has high sensitivity for lifetime alcohol dependence (90.2%) as well as high specificity (81.7%). While the MAST may detect the more severe problems, it may from a preventive point of view also be relevant to identify patients having a heavy consumption of alcohol which has not yet created such severe problems (Nielsen et al.. 1994; Rambaldi et al.. 1995).

We have recently reported a high prevalence (32.8%) of alcohol problems among inpatients in Naples, defined as a MAST score ≥ 5 points and/or an affirmative answer to the question: have you ever been drinking more than five units (corresponding to 60 g of ethanol) per day (males)/three units (corresponding to 36 g of ethanol) per day (females) during a period of at least 2 years (Rambaldi et al.. 1995). This high prevalence may be due to Berkson's fallacy (Berkson. 1946).

Using other screening methods, the prevalence of alcohol problems among general practice patients has been found to vary between 1.9 and 33% (Reid et al.. 1986; Nicol and Ford. 1986; Pilato et al.. 1987). By using a quantity-frequency questionnaire for alcohol consumption, Reid et al. (1986) observed that 1.9% of Australian general practice patients fell into the high-risk alcohol
consumption category (>60 g of ethanol/day for males and >40 g/day for females). However, using the MAST, Nicol and Ford (1986) found the prevalence of alcohol problems in UK to be 33% in males and 4% in females.

In the present cross-sectional study of consecutive adult patients consulting a general practitioner in an urban area of Southern Italy, the aim was to estimate the prevalence of alcohol problems. The diagnostic criteria were (1) a MAST score $\geq 5$ and/or (2) an affirmative answer to the question: have you ever been drinking more than five units (corresponding to 60 g of ethanol) per day (males)/three units (corresponding to 36 g of ethanol) per day (females) during a period of at least 2 years? Moreover, the aim was to examine the positive predictive and the negative predictive values (Vecchio, 1966) of the direct question about heavy alcohol consumption for identification of MAST positive patients.

PATIENTS AND METHODS

Setting

Castellammare di Stabia is a town in the province of Naples. It has 68,733 inhabitants and is situated 28 km south of Naples (ISTAT, 1991; Relazione tecnica al bilancio di previsione per il 1995 del comune di Castellammare di Stabia, unpublished observations). The province of Naples, with a manufacture value (index of wealth) of 16.5 million Lira per inhabitant per year, represents only 69% of the national mean of 24 million Lira per inhabitant per year (ISTAT, 1991).

General practice

There are about 80 general practitioners in Castellammare di Stabia. On reaching the age of 15 years, the inhabitants choose their general practitioner (from three to four within their area) and the majority stay affiliated with the same practitioner for life. For the present study, we selected one general practitioner with whom we already had personal contact (Gaetano Todisco) with a patient number of about 1000. We have no reason to believe that this practitioner either attracted or rejected patients with alcohol problems, either before or after the present study.

Patients

The general practice is open for patients on two weekdays, where patients may come without prior appointment. During the afternoon of these weekdays, one of the authors (N.T., a physician) interviewed consecutive Italian-speaking patients of at least 18 years of age, waiting to see the general practitioner during a 3 month period. In total, 123 patients were informed about the project and all accepted to participate. The project planned to exclude patients with unconsciousness, aphasia, dementia, psychosis, terminal illness and other miscellaneous reasons (Rambaldi et al., 1995). None of the patients fulfilled these exclusion criteria.

The interview, which lasted about 10 min, was based on a structured questionnaire including the 25 MAST questions and the direct question about consumption of at least five units of alcohol (corresponding to 60 g of ethanol) for males and at least three units of alcohol (corresponding to 36 g of ethanol) for females for a period of at least 2 years (Nielsen et al., 1994; Rambaldi et al., 1995). Moreover, patient sex and age were recorded. The questions were similar to the questions originally used for similar projects in Copenhagen and Naples and represented an Italian translation of the English version of the questions. In Italy, the content of a typical beer or a unit of a hard liquor corresponds to 12 g of ethanol. In Italy, however, the majority of alcohol is consumed as wine. In fact, Italy has the highest wine consumption in the world, but is only 10th regarding total alcohol consumption (Pyörälä, 1990). The wine is mostly produced in local wineries and the alcohol content varies. However, we assumed that one unit of wine corresponds to 12 g of alcohol. Castellammare di Stabia is a wine-producing area.

Ethics

The protocol was approved by the Ethics Committee of the University of Naples, the Faculty of Medicine and Surgery.

Statistics

Statistical analysis was performed by using the chi-square test (categories) and the Mann-Whitney test (continuous variables). Significance was assumed at $P < 0.05$. The positive predictive value (PVpos) and negative predictive value (PVneg) were calculated according to Vecchio (1966).
Table 1. Prevalence of alcohol problems among consecutive general practice patients screened with the Michigan Alcoholism Screening Test (MAST) (≥5 points) and a question on heavy alcohol consumption

<table>
<thead>
<tr>
<th>MAST positive</th>
<th>MAST negative</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy alcohol consumption positive</td>
<td>38</td>
<td>14</td>
</tr>
<tr>
<td>Heavy alcohol consumption negative</td>
<td>2</td>
<td>69</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>83</td>
</tr>
</tbody>
</table>

*Heavy alcohol consumption is defined as patients affirming an alcohol consumption of at least five units of alcohol (corresponding to 60 g of ethanol) per day for males and at least three units of alcohol (corresponding to 36 g of ethanol) per day for females for at least 2 years.

RESULTS

Prevalence of alcohol problems

Of the 123 patients, 77 (62.6%) were males and 46 (37.4%) were females. The median age was 47 years (range 18-83 years) with no significant difference between males and females.

Of the 123 patients, 54 patients [43.9%; 95% confidence interval (CI) 35.0-53.1%] tested positive for at least one of the two criteria for alcohol problems (Table 1). Of the 77 males, 45 (58.4%; 95% CI 46.6-69.6%) had alcohol problems compared to nine (19.6%; 95% CI 9.4-33.9%) out of the 46 females. This difference was significant \(P < 0.001\) (Table 1).

Of the 123 patients, 40 (32.5%; 95% CI 24.4-41.6%) were MAST positive. Table 2 shows the distribution of MAST scores in the total patient sample, males and females. Of the 77 males, 35 (45.5%; 95% CI 34.1-57.2%) had a MAST score ≥5, compared to five of the 46 females (10.9%; 95% CI 3.6-23.6%). This difference was significant \(P < 0.001\).

Of the 123 patients, 52 (42.3%; 95% CI 33.4-51.5%) affirmed an alcohol consumption of at least 60 g daily (males)/36 g (females) for at least 2 years. Of the 77 males, 43 (55.8%; 95% CI 44.1-67.2%) fulfilled this criterion, compared to nine out of the 46 females (19.6%; 95% CI 9.4-33.9%). This difference was significant \(P < 0.001\).

Of the 40 MAST positive patients, 38 (95.0%; 95% CI 83.1-99.4%) affirmed heavy alcohol consumption. Concerning gender, 33 out of 35 MAST positive males (94.3%; 95% CI 80.8-99.3%) and all out of five MAST positive females affirmed heavy alcohol consumption (100%; 95% CI 47.8-100%).

There were no significant differences in the median age of patients with and without alcohol problems [51 years (range 25-80 years) in one or both criteria positive vs 40 years (range 18-83 years) in negatives; 48 years (range 25-80 years) in MAST positives vs 45 years (range 18-83) in MAST negatives].

Predictive value of affirmed heavy alcohol consumption

The PVpos of the direct question about heavy alcohol consumption in identifying MAST positive patients was 73.1% (95% CI 59.0-84.4%), while the PVneg of this question was 97.2% (95% CI 90.2-99.7%) in excluding MAST positive patients.

The sensitivity of the direct question about heavy alcohol consumption was 95.0% (95% CI 83.1-99.4%) and the specificity was 83.1% (95% CI 73.3-90.5%).

Table 2. Distribution of Michigan Alcoholism Screening Test (MAST) scores in the total sample and in male and female patients consulting a general practitioner in the province of Naples

<table>
<thead>
<tr>
<th>MAST score</th>
<th>All (n = 123)</th>
<th>Males (n = 77)</th>
<th>Females (n = 46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>59 (48.0%)</td>
<td>24 (31.2%)</td>
<td>35 (76.1%)</td>
</tr>
<tr>
<td>1-4</td>
<td>24 (19.5%)</td>
<td>18 (23.4%)</td>
<td>6 (13.0%)</td>
</tr>
<tr>
<td>5</td>
<td>1 (0.8%)</td>
<td>1 (1.3%)</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>6 (4.9%)</td>
<td>4 (5.2%)</td>
<td>2 (4.3%)</td>
</tr>
<tr>
<td>7</td>
<td>4 (3.3%)</td>
<td>3 (3.9%)</td>
<td>1 (2.2%)</td>
</tr>
<tr>
<td>&gt;7</td>
<td>29 (26.6%)</td>
<td>27 (35.1%)</td>
<td>2 (4.3%)</td>
</tr>
</tbody>
</table>

*Patients scoring ≥5 points are considered MAST positive.
The essential results of the present study are that about 44% of consecutive adult patients attending their general practitioner have or have had alcohol problems, that the prevalence of alcohol problems was significantly higher among males than among females (58% vs 20%), and that the general practitioner may with acceptable validity screen for alcohol problems by asking the question about heavy alcohol consumption.

From a scientific, epidemiological point of view, the present study is not optimal. Only one general practice was involved and a limited number of patients were included. However, neither before nor after the present results were obtained were we able to identify any reasons for believing that this particular general practice attracted or rejected patients with alcohol problems. The limited number of patients included and the examination of consecutive patients during only afternoon hours were due to logistic factors. However, using the same criteria for establishing alcohol problems in a larger study including patients on a 24 h basis from several randomly selected general practices will most likely confirm our estimates or at least reach estimates within the observed confidence limits.

In the present study, we used the MAST and/or affirmed heavy alcohol consumption in estimating the prevalence of alcohol problems. These criteria are identical to those used by us in studies among inpatients (Nielsen et al., 1994; Rambaldi et al., 1995). The MAST has a reasonably high positive and negative predictive value in medical and surgical patients identifying alcohol problems (Storgaard et al., 1994), but may not identify patients in whom alcohol consumption has not yet created severe problems. Such patients may be identified through direct questioning about heavy alcohol consumption. The direct question about heavy alcohol consumption may, however, miss patients wishing to hide an alcohol problem. Such patients may be identified by the MAST (Selzer, 1971; Storgaard et al., 1994).

The MAST is a validated instrument for the detection of alcohol problems in Italians (Benussi et al., 1982; Garzotto et al., 1988). The Royal College of Physicians of London (1987) estimated that a real consumption of ethanol of 56 g for males and 40 g for females is dangerous. We selected a slightly different daily consumption (60 g and 36 g) and a duration of that reported consumption of at least 2 years before a patient was considered to have an alcohol problem by this question only. Considering mortality, these limits seem reasonable (Grønbæk et al., 1994; Fuchs et al., 1995).

Screening somatic inpatients in Naples with these criteria, we found a prevalence of alcohol problems of 32.8%: 43.8% in male inpatients and 14.8% in female inpatients (Rambaldi et al., 1995). The present prevalence of alcohol problems among men of 58.4% is significantly \( P < 0.05 \) higher than among male inpatients in Naples, whereas the present prevalence of alcohol problems among females of 19.6% does not differ significantly from that in female inpatients in Naples. The prevalence figures demonstrated in the present study do not indicate a Berkson's fallacy (Berkson, 1946) behind our previous estimate of alcohol problems among inpatients (Rambaldi et al., 1995). It seems plausible, however, that patients with alcohol problems are more prevalent in both inpatient and general practice patient populations than among the general population. Further studies are needed evaluating the prevalence of alcohol problems in the general population.

The higher prevalence of alcohol problems observed in the present study was unexpected, especially considering the levels reported in earlier studies (Reid et al., 1986; Strecher et al., 1994). It could be due to the younger age among general practice patients than among inpatients (median age 47 vs 60). As earlier studies in general practice have observed a higher prevalence of alcohol problems among patients in their forties (Aasland et al., 1987). However, in the present study, no significant age difference between patients with and without alcohol problems was observed. Another explanation could be the high proportion of males in the present study. It is possible that the fact that we only included patients during the afternoon may have influenced the gender distribution and hence the overall prevalence of alcohol problems. A further explanation could be that the rate of unemployment is high in the area in which the general practice is located. Unemployment was found to be significantly associated with alcohol problems among males in general practice (Nicol and Ford, 1986).
In the present patient sample, 45% of male and 11% of female patients were MAST positive. In comparison, Nicol and Ford (1986) found 33% of male and 4% of female UK general practice patients MAST positive; these figures, however, do not differ significantly between the two studies. The fact that the prevalence of male patients with alcohol problems was significantly higher than among females is in accordance with previous studies (Pilato et al., 1987; Dawson et al., 1992; Nielsen et al., 1994; Rambaldi et al., 1995).

Simple and quick screening methods for alcohol problems are needed in general practice. We therefore investigated if the 10 min MAST could be replaced by just questioning the patients about heavy alcohol consumption. In contrast to questions about alcohol consumption (frequency, amount and duration) (Schorling et al., 1995), the direct question about heavy alcohol consumption demonstrated a high PVneg and an acceptable PVpos in the present study. Re-analysing our previous studies on inpatients in Naples and Copenhagen demonstrated similar high PVneg of the direct question of heavy alcohol consumption in identifying MAST negative inpatients (PVneg = 92.5%; 95% CI 88.9–95.3%) in Naples (Rambaldi et al., 1995) and PVneg = 87.2% (95% CI 83.3–95.5%) in Copenhagen (Nielsen et al., 1994), although the PVpos of identifying MAST positive patients was lower [36.9% (95% CI 28.0–46.6%) and 75.6% (95% CI 64.6–84.7%)] in Naples and Copenhagen, respectively. From these studies and the present one, it seems that the physician may screen all patients with a 30–60 s question about heavy alcohol consumption. In those neglecting the question, the risk of overlooking an alcohol problem is ≤10%. In those giving an affirmative answer, further screening by, e.g. MAST, to estimate the magnitude of problems and/or diagnostic methods like ICD-10 (World Health Organization, 1992) or DSM-IV (American Psychiatric Association, 1994) seem warranted. Such a strategy may prove time effective and may increase the interest of the general practitioner in identifying and treating patients with alcohol problems.

Grønbæk et al. (1995) recently found that a daily intake of wine is associated with a significantly reduced mortality as compared with abstainers and daily drinkers of beer and spirits. In Italy most alcohol is consumed as wine. The present study demonstrates that among those with a heavy alcohol consumption, a high proportion had problems as detected by the MAST. Future studies should include information on the type of beverage consumed.

The present study demonstrates a high prevalence of alcohol problems in a general practice in Southern Italy. The figures underscore the necessity that general practitioners screen for alcohol problems. make the exact diagnosis of the alcohol problem and take action to offer the patient the right intervention (Fowler, 1985). Due to the magnitude of the problem, it calls for national and international efforts to introduce the best screening and intervention methods.

REFERENCES


A. Rambaldi et al.


