USE OF LABORATORY MARKERS AND THE AUDIT QUESTIONNAIRE BY PRIMARY CARE PHYSICIANS TO DETECT ALCOHOL ABUSE BY PATIENTS

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Abstract — Aims: To evaluate how often laboratory markers [Mean corpuscular volume (MCV), Gamma-glutamyl transferase, Aspartate aminotransferase, Alanine aminotransferase, or Carbohydrate-deficient transferrin (CDT)] and the Alcohol Use Disorders Identification Test (AUDIT) are used to detect alcohol abuse in primary health care. Methods: Cross-sectional self-administered questionnaire survey to all 3193 primary health care physicians in Finland. Response rate was (65.7%). Results: CDT was used at least occasionally by 43.4% of the physicians. Corresponding figures were 53.4% for conventional alcohol laboratory markers (MCV, transaminases) and 67.0% for AUDIT. Almost all the respondents used some laboratory marker to detect alcohol abuse. The use of brief alcohol intervention was associated with the greater likelihood that a physician uses different methods to detect alcohol abuse. The data also indicates that gender, age, and having a specialist licence influence activity in using different methods. Conclusions: Considering the ambivalences in relation to alcohol issues in health care, the use of CDT and AUDIT are reasonably frequent. This may indicate that tools to facilitate the work may also help in adapting new activities.

INTRODUCTION

The detection of alcohol abuse in its early phase is difficult. Good skills are needed to pursue the clinical interview, which is also considered time consuming by some physicians (Aalto et al., 2003a). This is why different aids for detection have been developed. These include conventional alcohol laboratory markers: mean erythrocyte corpuscular volume (MCV), gamma-glutamyltransferase (GGT), aspartate aminotransferase (ASAT), and alanine aminotransferase (ALAT). Of these, GGT is considered the most useful. Its sensitivity in detecting alcohol dependence is 70–90%, but its sensitivity in detecting early phase alcohol abuse is only ~30% (Salaspuro, 1999). Of the elevated GGT values, ~70% are due to alcohol consumption. Carbohydrate-deficient transferrin′s (CDT) specificity is higher, but its sensitivity seems to be about the same as that of GGT (Sillanaukee et al., 1998; Salaspuro, 1999). Alcohol laboratory markers are useful in some clinical situations, but in general they are not highly recommended as a single method for detecting alcohol abuse (Aertgeerts et al., 2001).

The Alcohol Use Disorders Identification Test (AUDIT) (Saunders et al., 1993) has been recommended as a first-line method to screen patients’ alcohol abuse, because of its good sensitivity and specificity (Aertgeerts et al., 2001). Reinert and Allen (2002) found that its median sensitivity was 86% and its median specificity was 89%, in different studies. However, its length for busy practice has been considered as a possible problem (Roche and Freeman, 2004; Seppä et al., 2004).

Both CDT and AUDIT were introduced over a decade ago (Stibler, 1991; Saunders et al., 1993). During the same period promotion to increase the awareness of alcohol issues, especially brief intervention, has been active in primary health care stressing the importance of using several tools in detection (Kääriäinen et al., 2001; Aalto et al., 2003b). However, there is little knowledge of how these methods are adapted by physicians and how often they are used in relation to brief intervention in primary health care. The purpose of the present study was to investigate these issues among all and some subgroups of primary care physicians in Finland.

SUBJECTS AND METHODS

Study population

The study questionnaire was mailed to all primary care physicians working in primary health care centres in Finland. Data was collected at the beginning of 2002. The addresses of the physicians were obtained from the yearly-updated register of the Finnish Medical Association and the National Authority for Medicolegal Affairs. It includes all physicians working in Finland. Based on this register, there were 3471 physicians working in primary health care centres. Of these, 278 were specialists in some field of medicine other than general practice or occupational health care and were excluded from this study. Therefore, 3193 physicians were subjects in the present study.

Questionnaire

A self-administered questionnaire was designed for this study. There were several structured questions related to demographic and professional background, including gender, age, and having a specialist licence (no licence, licence in general practice, or licence in occupational health care). Structured questions about the frequency with which the physicians used CDT, any laboratory marker (MCV, GGT, ASAT, ALAT, or CDT), and AUDIT were included. The use of conventional markers (MCV, GGT, ASAT, ALAT) was calculated based on these questions. There were three options in each of these questions: (i) regular use, (ii) occasional use, and (iii) no use. Likewise the physicians were asked to report their activity in using brief intervention. If the alternative of ‘no use’ was reported, physicians were further asked to report whether or not they were familiar with that particular method.

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The questionnaire was accompanied by a prepaid envelope and a short covering letter stating that the purpose of the survey was to collect information for the implementation of brief alcohol intervention and that the anonymity of the respondents was guaranteed. Anonymity was assured by the fact that only the envelopes, not the questionnaires, had the identification codes needed for the next mailing wave, and the returned envelopes were opened and separated from the questionnaires by a person who did not have access to opening the codes.

A response rate of 65.7% (2099/3193) was achieved in three mailing waves. The mean age of the respondents (SD) was 42.5 (8.7) years. Table 1 shows the respondents’ other characteristics and that they were similar to all primary care physicians.

Statistical methods

Statistical analyses were carried out with the Statistical Package for Social Sciences 12.0. Frequency comparisons were conducted with the Pearson χ²-test or Fisher’s exact test. Owing to the small number of specialist licences in occupational health care this group was combined with specialists in general practice for the purpose of analysis. Differences were considered statistically significant at \( P < 0.05 \).

RESULTS

Laboratory markers (MCV, transaminases or CDT) were reported to be a more commonly used method than the AUDIT questionnaire to detect patients’ alcohol abuse (Fig. 1). Almost all the physicians (97.7%, 1971/2017, 82 missing values) reported using these markers at least occasionally. CDT was used at least occasionally by 43.4% (871/2007, 92 missing values) of the physicians. Conventional alcohol laboratory markers (MCV, transaminases) were used by 27.9% regularly and by 53.4% at least occasionally. AUDIT was used by 67.0% (1348/2014, 85 missing values) at least occasionally (Fig. 1). Of those who did not use CDT, 55.5% (631/1136) were not familiar with it. The corresponding figure for AUDIT was 36.3% (242/666).

CDT was used at least occasionally by 53.3% (714/1339) of those using AUDIT at least occasionally vs 23.6% (156/660) of those not using CDT at all (Fisher’s exact test, \( P < 0.001 \)). Correspondingly, AUDIT was used at least occasionally by 82.1% (714/870) of those using CDT at least occasionally vs 55.4% (625/1129) of those not using CDT at all (Fisher’s exact test, \( P < 0.001 \)).

Regular or occasional use of brief intervention was associated with more frequent use of all the detection methods studied, even if those not doing brief intervention at all used laboratory markers and the AUDIT questionnaire quite often (95.6 and 44.0%, respectively) (Fig. 2). Those who did brief intervention regularly used AUDIT regularly 4.2 times more commonly than those with no brief intervention activity at all (Fig. 2c). Instead, use of the detection methods did not differ between those reporting regular and those reporting occasional brief intervention activity (Fig. 2).

Male physicians reported using CDT more than female physicians (Table 2). In the use of laboratory markers...
Miller et al. (2004) have reported a similar, but small study \((n = 48)\). Comparison with that study in detail is difficult because their sample was a selected group of physicians and because the methods were different from those in the present study. Briefly, they found that knowledge about and use of CDT was low and that knowledge about AUDIT was almost as low as for CDT, but that it was used more often (Miller et al., 2004).

Almost all the respondents in our study used some laboratory marker to detect alcohol abuse. This was expected, because in Finland MCV and transaminases are available to all primary care physicians and they are familiar with their use for other purposes. In spite of the recommendation to use CDT as a first-line biological marker of alcohol abuse (Schwan et al., 2004), its use was not so frequent. The most probable reason for this is that it is not as well known as the conventional markers. Less frequent use of CDT can also be partly explained by the fact that the only indication for its use is alcohol abuse, in contrast to conventional alcohol markers.

DISCUSSION

As far as we know this is the first large-scale study to investigate the use of CDT and AUDIT to detect alcohol abuse.
This means that physicians may find it difficult to justify using CDT.

Almost 70% of the physicians used AUDIT, which contrary to some results (Roche and Freeman, 2004; Seppä et al., 2004) indicates that most of the primary care physicians consider AUDIT useful as a part of routine practice. Another explanation is that physicians in Finland are forced to use AUDIT occasionally in the case of physicians’ examinations in relation to driving licence applications. The use of AUDIT was more common than of CDT. Differences in the costs of these methods may partly explain this finding. Another probable reason is that the validity of CDT is still questionable (Koch et al., 2004) and AUDIT has been recommended as a first-line method to screen for alcohol abuse (Aertgeerts et al., 2001).

It is natural that the use of brief alcohol intervention was associated with the higher likelihood that physicians use different methods to detect alcohol abuse. It also seems that physicians do not choose between CDT and AUDIT, but the use of one of these methods increases the likelihood that the physician also uses the other method. The data also indicate that some factors in relation to physicians influence activity in using detection methods. These included gender, age and, specialist licence.

It should be admitted that physicians usually overestimate practice behaviour. A 10% audit of physicians records (charts) would have been a way of estimating the extent of possible over-reporting, but due to the anonymous nature of the questionnaire this was not possible.

A careful clinical interview is the method of choice to detect alcohol abuse. A limitation of this study is that we have no information on this and thus cannot compare it with the use of AUDIT and laboratory markers. It is possible, even if unlikely, that those who do not use AUDIT or even laboratory markers utilize a thorough clinical interview instead.

Another possible limitation of the present study is that the data was based on the physicians’ self-reports. Such an approach may have produced an overestimate of the use of different methods. A guarantee assuring anonymity was included in the covering letter accompanying the questionnaire in order to address this concern.

In spite these limitations it can be concluded that, considering the ambivalences that there have been in relation to alcohol issues in health care, the use of CDT and AUDIT are already reasonably frequent. This may indicate that tools to facilitate the work may also help in adapting new activities. However, the results also point out that the use of CDT and AUDIT should still be promoted.

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REFERENCES