

Hidden Alcohol Abuse Among Women

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Seven years ago the authors examined 64 consecutive female out-patients with macrocytosis (erythrocyte mean cell volume ≥ 100 fl). The cause remained undetermined in 23 (35.9%). Their patient histories were evaluated in 1992, and the new highly specific alcohol marker, serum carbohydrate-deficient transferrin, from the frozen sera taken during the initial study was examined. It was elevated in 6 of the 23 women. Furthermore, four of these six had visited the health centre after 1985 and they all had clinical records indicative of alcohol problems. Because early intervention has proved to be effective, information about the risks of alcohol abuse (intervention) should be given to women with suspect alcohol-induced symptoms or signs. *British Journal of Psychiatry* (1994), 164, 544–546

The Group for the Advancement of Psychiatry Committee on Alcoholism and the Addictions concluded that psychiatrists should possess expertise in the recognition and treatment of substance use disorders (Group for the Advancement of Psychiatry Committee on Alcoholism and the Addictions, 1991). A difficult challenge for all doctors, but especially for psychiatrists, are the patients who seek professional help because of somatic symptoms but do not admit their principal problem, alcohol abuse.

Particularly among women, alcohol abuse is a hidden problem (Froede & Gordon, 1980; Seppä *et al*, 1992) and women more often than men seek help for it by using names other than alcohol abuse, most often psychiatric symptoms. Because abuser women have a two- to threefold higher mortality compared to non-abusing women, a higher mortality and morbidity compared to abusing men (Morgan & Sherlock, 1977), and because early treatment of alcohol abuse has many advantages compared to the treatment of an advanced problem (Wallace *et al*, 1988), early detection should be emphasised in clinical settings. Early intervention has proved to be successful among women rather than men (Sanchez-Craig *et al*, 1989).

In a previous study on macrocytosis, we found that a higher percentage of the cases in women (35.8%) than in men (6.8%) could not be traced to a specific cause (Seppä *et al*, 1991). We suggested that many of the cases of non-explained macrocytosis among women were due to a hidden alcohol problem. In order to examine this possibility further, we have now used a new alcohol marker, serum carbohydrate-deficient transferrin (CDT), in a group of women

with unexplained macrocytosis. This marker initially has been considered highly specific and sensitive (Stibler *et al*, 1979), but recently its sensitivity has been questioned in many studies (Sillanaukee *et al*, 1993). However, it has a low correlation with erythrocyte mean cell volume and serum gamma glutamyltransferase (Sillanaukee *et al*, 1993) and it is thus often abnormal even if the other markers are normal. As we describe here, the case histories of the women with a hidden alcohol problem, later detected as heavy drinkers using CDT, were followed for 7 years.

Method

The Tampere Health Centre serves the 175 000 inhabitants of the city in southern Finland. From January 1985 to September 1985 a total of 150 samples with an erythrocyte mean cell volume (MCV) value of ≥ 100 fl were found in the haematology laboratory, representing 2.4% of all blood counts. These blood tests had been ordered by general practitioners for different reasons: to elucidate a symptom, to control chronic diseases, or for health screenings.

All these 150 patients then were examined thoroughly by one of us (K. S.) and the exact cause for macrocytosis was defined. The patients consisted of 86 men and 64 women. Three of the women had liver disease, 14 had deficiency of vitamin B₁₂ or folate, one had hypothyroidism, and two had haematological diseases ($n = 20$). Extensive effort was made to detect alcohol abuse on the basis of:

- (a) a nine-question alcohol questionnaire, the Malmö Modified Michigan Alcoholism Test (Mm-MAST) (Kristenson & Trell, 1982), with a cut-off point of two positive answers
- (b) patient history
- (c) physical signs
- (d) serum gamma glutamyltransferase.

The combination of all these four parameters detected 21 female abusers. In 23 women (35.9%) the cause for macrocytosis remained unsolved. All patients were informed initially about the possible reasons for macrocytosis, including alcohol abuse.

Serum carbohydrate-deficient transferrin was measured in January 1992 from frozen serum (-70 °C), originally taken in 1985, using anion-exchange separation of CDT followed by double-antibody radioimmunoassay (Kabi Pharmacia, Uppsala, Sweden) from all the 23 women with no identified cause for the macrocytosis. Additionally, to test the efficiency of this material, CDT was measured from 22 samples randomly selected from the original series:

Table 1
The characteristics of the six women with macrocytosis (erythrocytosis mean cell volume, MCV, ≥ 100 fl) found to have raised serum carbohydrate-deficient transferrin (CDT)

No.	Age: years	Marital status	MCV: fl	S-GT: ¹ U/l	CDT: U/l	Smoking	Alcohol use ²	Mm-MAST ³
1	74	Married	110	11	26	No	No	0
2	75	Unmarried	101	14	25	Yes	No	0
3	39	Married	103	18	30	Yes	Yes	0
4	57	Married	100	12	24	Yes	Yes	0
5	43	Married	102	14	36	Yes	Yes	1
6	38	Divorced	100	11	25	No	Yes	0

1. Serum gamma glutamyltransferase.

2. Self-reported alcohol consumption.

3. Mm-MAST indicates positive answers in the nine-question Malmö-modified Michigan Alcoholism Screening Test (score 0-9; ≥ 2 indicates alcohol abuse).

from 13 macrocytic female abusers, from all three women with liver disease unrelated to alcohol, and from six women with some other cause for macrocytosis. A value of ≥ 24 U/l was considered to be elevated.

All women with no cause for macrocytosis were invited for further blood tests 1 year after the first sampling. In February 1992, about 7 years after the initial study, the patient histories of these women were evaluated from the documents in the health centre. The study protocol was approved by the Ethics Committee of Tampere City Hospital.

Results

To evaluate the efficiency of CDT in the present material, 13 female abusers were randomly selected from the macrocytic women. CDT was increased in five of them (38%). The mean (s.d.) value in this group was 21.5 (4.3) U/l. Among the three women with liver disease unrelated to alcohol, one had an increased value (26 U/l). Her disease was chronic aggressive hepatitis; she had been in the hospital for several months and thus clearly had not consumed any alcohol. Of the six randomly selected female macrocytic patients with macrocytosis related to a cause other than alcohol, one had refractory anaemia, two had a deficiency of vitamin B₁₂, and three a deficiency of folate; one of the women with a deficiency of vitamin B₁₂ had an increased CDT value (25 U/l).

The distribution of CDT values in four different female groups with macrocytosis was examined. Among the 13 alcohol abusers, five had an increased value (≥ 24 U/l); of the three women with other than alcohol-induced liver disease, one had an increased value; one of the six women with some other cause for macrocytosis had an increased value. In the group of 23 women with no cause of macrocytosis, six (26%) had an increased CDT value. Neither patient history nor any symptom or sign other than CDT provided a basis for suspecting alcohol abuse.

The main characteristics of these six women with raised CDT are presented in Table 1. Two of them had a psychiatric cause for consulting the physician. Woman no. 2 had depressive symptoms. She was seen by a psychiatrist and flupenthixol medication was started. Woman no. 4 had

hypertension but also depressive symptoms because of difficulties at work. Over the next few months she also developed coronary artery disease and was retired from work, which had a positive effect on her depressive symptoms. Woman no. 1 came for hypertension, no. 3 for pain in her throat, no. 5 for abdominal pain, and no. 6 for a routine health check-up. None of them had substance abuse other than alcohol.

After 1 year (in 1986), five of these six women came for a new sampling. The MCV value had increased in one patient, remained the same in another, and decreased in three. In 1992, 7 years after the start of the study, patient documents revealed information about four of these six women. Patients nos. 1 and 3 had not visited the health centre after 1985. Patient no. 2 had had a fracture in her humerus in 1987 and had attempted suicide in 1988. Her last MCV value was 101 fl in autumn 1989. Patient no. 4 had fallen down in 1988 and had a radius fracture as a consequence. Her last MCV value was 102 fl in spring 1989. Patient no. 5 had visited several times because of ventricular ulceration. Her last MCV value was 102 fl in autumn 1988; no questions about her alcohol consumption had been made after 1985 in spite of her abdominal symptoms. Patient no. 6 had had a digital fracture after falling in 1990. During the same year she had been assaulted in a restaurant. Her last MCV value was 102 fl in February 1989.

Discussion

The difficulties in detecting early-phase heavy drinking are clearly seen in this study. Patient interview and history, an alcohol questionnaire, and serum gamma glutamyltransferase measurement were all used in the diagnosis. In spite of this, of the 23 women for whom no cause could be made for the macrocytosis at the time, six were identified later as heavy drinkers using CDT.

Serum carbohydrate-deficient transferrin has been shown lately not to work as sensitively as expected from earlier studies (Sillanaukee *et al.*, 1993). We had the same result in the present study; CDT was increased in only 38% of female macrocytic

abusers. In contrast, specificities have been high in the studies with low sensitivities (Sillanaukee *et al*, 1993). False-positive CDT values are sometimes found in patients with other than alcohol-induced liver disease. However, all women in the present study with no cause for macrocytosis were thoroughly investigated in 1985; several laboratory tests in addition to serum gamma glutamyltransferase were normal (Seppä *et al*, 1991). Furthermore, no clinical signs of liver disease were found in the four women who visited the health centre after the initial study in 1985. Thus, the diagnosis of alcohol abuse by elevated CDT in the six women in the present study is likely to be accurate. Because of the low sensitivity, however, it is possible that some of the other 17 patients without a definite diagnosis might also be hidden abusers.

More support to the accuracy of the alcohol abuser diagnosis in the six women is provided by the patient histories in the subsequent 7 years. Four of these six women had visited the health centre afterwards and all had symptoms that most likely are alcohol-related. One of the women had gastric symptoms known to be common among abusers. Fractures also are often combined with alcohol abuse; for example, in Finland 69% of falls leading to hospital admissions are due to drunkenness. In the present study, three of the women had fractures during the follow-up period.

The new specific alcohol marker, CDT, offers some help. Knowing that the CDT level is increased makes it possible for a clinician to initiate the intervention process even with patients who deny alcohol abuse. Some of these hidden female heavy drinkers probably may be helped with only brief intervention: according to earlier studies possibly 10–30% of them. The remainder are divided among those who continue to drink but stay in contact with the clinician and those who never return to the clinician. The common assumption is that the latter group drinks the most. Perhaps the situation might be improved by public information about the effects of alcohol, which is known to influence women more than men, or by specific training of clinicians for dealing with alcohol problems in clinician–patient interaction. A third possibility, to advise these patients to contact psychiatrists, is unlikely to produce better results because the problem is very strictly hidden.

These patient histories emphasise the importance of finding methods for early identification of alcohol abuse and also techniques for intervening in the early-phase heavy drinking. If CDT had been used in 1985, heavy drinking would have been detected before the development of several health problems. These women did not admit alcohol abuse; four of them denied drinking at all and two said they drank very seldom. Only one of them had positive

answers in the questionnaire. Thus, no intervention against alcohol abuse was offered. Because alcohol abuse is a common and hidden problem, it might be helpful to inform all patients about the dangers of excessive drinking. Thus, even hidden abusers would be informed and women especially would benefit from this early intervention.

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