Publication

Assessment of alcohol use among methadone maintenance patients by direct ethanol metabolites and self-reports

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BACKGROUND: Heavy alcohol consumption may accelerate the progression of hepatitis C (HCV)-related liver disease and/or limit efforts at antiviral treatment. As most of the patients in methadone maintenance treatment (MMT) suffer from hepatitis C infection, this study was conducted to identify the alcohol intake among these patients at a Swiss Psychiatric University Clinic by self-reports and direct ethanol metabolites as biomarkers of ethanol consumption. PATIENTS AND METHODS: A convenience sample of 40 MMT patients (15 women, 25 men; median age 39 years) of the total 124 patients was asked and consented to participate in this study. This sample was not different in age, gender distribution, and rate of hepatitis C infection from the total sample. The Alcohol Use Disorders Identification Test (AUDIT) and self-reported ethanol intake during the previous 7 days were assessed. In addition, ethyl glucuronide (EtG) in urine, and fatty acid ethyl esters (FAEEs) and EtG in hair were determined using LC-MS/MS and gas chromatograph/mass spectrometer. The limit of quantitation for UEtG, HEtG, and FAEEs were 0.1 mg/l, 2.3 pg/mg, and 0.1 ng/mg, respectively. RESULTS: Fourteen participants reported abstinence from alcohol for the previous 7 days. AUDIT scores were > or =8 in 15 male and >5 in 5 female participants. Direct ethanol metabolites were as follows (median, min, max, standard deviation): UEtG (19 positives; 9.91, 1.38 to 251, 62.39 mg/l); the values of HEtG were 17.65, 0 to 513, 105.62 pg/mg [in 2 cases no material, 8 abstinent (up to 7 pg/mg), 15 social drinkers (up to 50 g per day), and 15 excessive users (>50/60 g/d)]. For the 13 cases, where enough material for additional determination of HFAEEs was available, the values were 0.32, 0 to 1.32, 0.44 ng/mg. Among the 30 HEtG-positive participants, 20 had not reported the corresponding ethanol intake using question 1 (frequency) and 2 (quantity) of the AUDIT. Of the 14 participants reporting no alcohol intake during the previous 7 days, 4 were UEtG-positive. HEtG and AUDIT correlated significantly ($r = 0.622$, $p < 0.0001$), but this was not the case for UEtG and self-reported ethanol intake during the previous 7 days. CONCLUSION: (1) HEtG identified 20 cases of daily ethanol intake of more than 20 g, that would have been missed by the sole use of question 1 (frequency) and 2 (quantity) of the AUDIT. (2) Using the total score of the AUDIT, HEtG confirmed 10 more cases positive for alcohol intake. (3) Episodic heavy drinking is with 22.5% more frequent than in general population, and (4) of the 14 participants who reported no alcohol intake during the previous 7 days, 4 were UEtG positive. Improved detection of alcohol consumption, which is hazardous or harmful in the context of HCV and opiate dependence, would allow for earlier intervention

in this population which is at particular risk of liver disease and fatal respiratory-depressed overdose. The combined use of self-reports and direct ethanol metabolites seems promising.

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