S20.2

DRUG AND ALCOHOL USE IN FREQUENT AND INFREQUENT CANNABIS USERS

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Background. Epidemiological aspects of cannabis use have been extensively studied in the scientific literature, yet there is a scarcity of studies that adress the question of how frequency of cannabis use and use of alcohol and other drugs are related. The aim of this presentation is to discuss differences in licit and illicit drug use in frequent and infrequent cannabis users.
Methods. The presentation is based on results from an alcohol and drug use questionnaire sent to 58.000 individuals in the Swedish general population. The questionnaire contained the Alcohol Use Disorders Identification Test (AUDIT) as well as data on illicit drug and prescription drug use. Cannabis users were divided in frequent or infrequent users, based on reported frequency of use.
Results. The over-all response rate was 38% (n = 22,095). There were positive associations between any cannabis use and hazardous alcohol use, use of other illicit drugs and unauthorized use of prescription drugs. Frequent cannabis use, compared to infrequent cannabis use, was positively associated with use of other illicit drugs and negatively associated with alcohol risk drinking.
Conclusions. The results largely confirm what was previously known about the association between cannabis use and hazardous alcohol use, use of other illicit drugs and unauthorized use of prescription drugs. However, the inverse relationship between frequency of cannabis use and hazardous alcohol use among cannabis users was surprising. These results suggest a more complex relationship between alcohol and cannabis use.

S20.3

AMOUNT AND CONSEQUENCES OF ALCOHOL DRINKING ARE MODULATED BY EVER USING CIGARETTES AND CANNABIS. A COMPARISON BETWEEN SWEDEN AND US

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Background. To study effects of ever used cigarettes or cannabis on amount and consequences of alcohol drinking. The ATLAS Project is a long-term longitudinal study comparing the development of substance use from high school to the young adult life period (18-23 years) in the US and Sweden.
Methods. Baseline data for 3352 17-19 year-old students (65% from Sweden, 35% from US). Measurements: Questionnaire AUDIT-C, Rutgers Alcohol Problem Index, RAPI, ever use of marijuana, cigarettes and alcohol, onset of alcohol drinking, Conduct problems, SCL-8, Impulsivity.
Results. The patterns of ever use differed distinctly between the two countries. In US 35% had never used alcohol, 17% had used alcohol and cannabis, 4% alcohol and cigarettes and 22% alcohol, cannabis and cigarettes. Corresponding figures in Sweden were 7%, 1%, 48% and 17%, respectively. Sweden had higher scores on AUDIT C and RAPI than US in the first three groups. In hierarchical multiple regression analyses on AUDIT C early drinking onset, conduct problems and impulsivity had about the same positive effects. Sweden, ever use of cigarettes and marijuana were all significantly related. Marijuana influenced less in Sweden than in the US. In hierarchical multiple regression analyses on RAPI conduct problems had a very strong effect. Sweden, cigarettes and marijuana were all significantly related. Cigarettes influenced less on consequences of drinking in Sweden than in the US.
Conclusions. Sweden and the US differed in important aspects on modulating effects of cannabis and cigarettes on alcohol drinking. Supported by a grant from NIAAA/NIH for Larimer/Berglund.

S20.4

THE ROLE OF CANNABIS, BENZODIAZEPINES AND ALCOHOL IN THE TREATMENT OF OPIATE DEPENDENCE

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Background. Polydrug abuse is common in heroin addiction, and may increase the difficulty in treatment adherence and clinical course in heroin addicts. As part of the present study, a pilot effectiveness study of an interim approach for initiation of substitution treatment in heroin addiction, we aimed to analyze the role of polydrug abuse.
Methods. 44 patients (five women, 39 men) with opiate dependence entered an interim buprenorphine treatment program, aiming to transfer the patient to full-scale substitution treatment once they achieve drug-free urines.
Results. Use of other substance types than opiates was common during the last 30 days prior to treatment (benzodiazepines in 77% and cannabis in 61% of patients). Positive urine samples in the interim phase of treatment were most common for cannabis (48%) and benzodiazepines (44%), markedly more common than for the primary drug of abuse. Successful transfer from interim to full-scale treatment was predicted by lower alcohol use at baseline (AUDIT score, $p < 0.001$) and fewer days of cannabis use during the past 30 days ($p = 0.059$).
Conclusions. Polydrug use remains problematic in an interim phase of treatment in heroin addiction, and benzodiazepines and cannabis are the most common substances involved, more common than the primary opiate problem. Also, polydrug use, including alcohol and cannabis use, appears to predict a negative outcome in treatment.

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TOWARD A BETTER UNDERSTANDING OF THE SPECTRUM OF FETAL ALCOHOL SPECTRUM DISORDERS AND THE ROLE OF MATERNAL NUTRITION IN MODIFYING FETAL RISK

S21.1

EXTENDING THE SPECTRUM OF STRUCTURAL DEFECTS ASSOCIATED WITH PRENATAL ALCOHOL EXPOSURE

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Background. The cardinal features of full-blown Fetal Alcohol Syndrome have been well-described. However, prenatal alcohol exposure may produce a broader spectrum of structural defects with implications regarding the mechanisms of alcohol's effects on the developing fetus.
Methods. We examined 831 children from the Collaborative Initiative on Fetal Alcohol Spectrum Disorders (CIFASD) using a structured protocol for diagnosis of FASD. Each child was evaluated for the cardinal facial and growth features, as well as for additional structural defects thought to occur more often in children with prenatal alcohol exposure. Subjects were classified as FAS, Deferred or No FAS. Groups were compared on prevalence of additional features observed, and were stratified by diagnostic category for sex, race and age.
Results. Of the eight additional features evaluated, there was a statistically significant increase in seven. Children in the FAS group had the highest prevalence of additional features and those in the No FAS group had the lowest. Four of the additional features, including decreased elbow pronation/supination, decreased finger extension, hockey stick palmar crease, and other palmar crease abnormalities, could be related to decreased fetal movement, the result of the effect of alcohol on early brain development. The frequency of additional structural features varied by age and race of the child.
Conclusions. This study shows that prenatal alcohol exposure may produce a broad spectrum of structural defects, which is critical in documenting the true prevalence of this disorder.

S21.2

MATERNAL ALCOHOL CONSUMPTION DURING PREGNANCY, NUTRITIONAL STATUS AND IMPACT ON INFANT OUTCOMES

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Background. The role of maternal nutrition among women who consume alcohol during pregnancy is largely unexplored.
Methods. As part of a cohort study on FASD being conducted in Ukraine, women were recruited during pregnancy into an alcohol exposed group or an unexposed group. Blood samples were analyzed for concentrations of a wide range of micronutrients. In addition, women were randomized within group to receive a prenatal vitamin/mineral supplement or standard of care (advice to take vitamins). Infants were evaluated for physical features of FASD and performance on the Bayley Scales of Infant Development at 12 months.

Results. Between 2007-2012, 252 alcohol-exposed and 274 unexposed women were enrolled. After adjustment for covariates, alcohol dose was associated with significantly lower concentrations of Cu, folate and vitamin D; alcohol dose was associated with significantly higher levels of homocysteine (p's <0.05). Among 298 children who completed the Bayley, those in the alcohol-exposed group scored ~10 points lower on the Mental (MDI) and Motor (PDI) Development Indices than unexposed infants (p's <0.001). There was a significant interaction between alcohol group and the vitamin intervention; those in the alcohol exposed/intervention group scored approximately 11 points higher on the MDI ($p < 0.001$) and 6 points higher on the PDI ($p < 0.04$) than those assigned to standard of care.
Conclusion. These data suggest that maternal nutritional status is associated with alcohol dose in pregnancy and that a vitamin supplement intervention in pregnancy may have a beneficial effect.

S21.3

MICRONUTRIENT SUPPLEMENTS CAN MITIGATE THE TERATOGENIC EFFECTS OF PRENATAL ALCOHOL EXPOSURE ON UKRAINIAN INFANTS AT 6 MONTHS

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Background. Suboptimal nutrition may explain the higher incidence of Fetal Alcohol Spectrum Disorders (FASD) and Fetal Alcohol Syndrome (FAS) in disadvantaged populations. A clinical trial evaluated potential benefits of micronutrient supplementation, including choline, in an at risk populationin Khmelnitsky and Rivne, Omni-Net sites in Western Ukraine.
Methods. Alcohol-using and nondrinking women recruited mid-pregnancy were randomized to: 1) multivitamin/multimineral supplement (MVM); 2) MVM + choline; 2) non-supplements. At 6-Months, children (N= 192) were assessed with the Bayley Scales of Infant Development (2^{nd} ED) yielding standard scores for Mental Development Index (MDI), Psychomotor Development Index (PDI), orientation, emotional reactivity, and motor performance.
Results. Generalized Linear Modeling evaluated the impact of amount of alcohol used preconceptionally and within pregnancy. We collapsed the two supplement groups (Suppl group) and controlled social class (SES), smoking, gender, vitamin and folic acid use prior to recruitment. MDI was significantly impacted by alcohol dose during pregnancy ($\beta = -14.66$, $X^2_{(1)} = 9.3$, $p < .002$) with those exposed to more alcohol having lower cognitive scores. Those who received supplements performed better ($\beta = -3.69$, $X2_{(1)} = 8.03$, $p < .005$). PDI scores did not differ by nutrition but showed a significant effect of alcohol dose during pregnancy ($\beta = -26.99$, $X^2_{(1)} = 8.28$, $p < .004$). Orientation behavior also differed as a function of Suppl Group ($\beta = -5.45$, $X^2_{(1)} = 4.51$, $p < .03$) and as a result of alcohol dose at conception ($\beta = -4.52$, $X^2_{(1)} = 5.75$, $p < .02$); Motor Optimality was affected by alcohol dose at conception and during pregnancy.
Conclusions. Results suggest that multimicronutrient supplementation reduces negative impact of alcohol use during pregnancy on specific outcomes.

S21.4

THE IMPACT OF MICRONUTRIENT SUPPLEMENTATION IN ALCOHOL-EXPOSED PREGNANCIES ON INFORMATION PROCESSING SKILLS IN UKRAINIAN INFANTS

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Background. The role that micronutrients play in ameliorating the negative impact of prenatal alcohol exposure (PAE) was explored in a randomized clinical trial conducted in Rivne, Ukraine. To assess neurodevelopmental outcome, cardiac orienting responses (ORs) during an information processing paradigm were obtained from infants between 6-12 months.
Methods. Women who differed in prenatal alcohol use were recruited during pregnancy and randomized to group: None, Multivitamin/Minerals (M/M), and Multivitamin/Minerals plus Choline (M/M + Choline). The habituation stimuli were presented for 10 trials and the dishabituation stimulus were presented for 5 trials. Baseline HR was collected for 30 sec prior to stimulus onset and then 9 sec post-stimulus onset from which difference values were computed for analysis for the first 3 trials of each condition.
Results. A repeated measures analysis of covariance was used for each of the two time periods. On the auditory dishabituation trials, a trial by vitamin group effect was found ($F(4, 172) = 2.428$, $p < .050$, eta-squared = .053) with those in the choline + MVM group having more HR deceleration on trial 3. On the visual dishabituation trials, a significant trial by prenatal alcohol exposure history was found ($F(2,180) = 3.281$, $p < .040$, partial eta-squared = .035). Infants with a history of PAE had higher HR on trials 2 and 3 than did those without PAE.
Conclusion. Prenatal alcohol negatively impacts the speed of encoding and memory of environmental events but choline supplementation during pregnancy may provide some beneficial impact to these skills.

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LIVER TRANSPLANTATION: A EUROPEAN PERSPECTIVE

SYMPOSIUM OF THE EUROPEAN FEDERATION OF ADDICTION SOCIETES (EUFAS) II

S22.1

ASSESSING DRINKING STATUS IN LIVER TRANSPLANT PATIENTS WITH ALCOHOLIC LIVER DISEASE

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Accurate assessment of drinking by patients with alcoholic liver disease is important both before and after liver transplantation. Unfortunately, self-reports by these individuals often underestimate their actual alcohol consumption. Several recently developed biochemical measures can provide additional information on the patient's use of alcohol. This paper describes ethyl glucuronide, ethyl sulfate, phosphatidyl ethanol and carbohydrate deficient transferrin as biomarkers of drinking and summarizes research dealing with their application with alcohol use disorder patients that are candidates for or recipients of liver transplant. The paper also offers suggestions for enhancing the reliability of self-report measures of drinking status.

S22.2

RISK FOR RELAPSE OF ALCOHOL USE AFTER LIVER TRANSPLANTATION FOR ALCOHOLIC LIVER DISEASE: A REVIEW AND PROPOSAL OF A SET OF RISK ASSESSMENT CRITERIA

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Liver transplantation for alcoholic liver disease is becoming a frequent procedure. Assessing the risk on relapse in alcohol use is a major issue. However, up to now, there is a lack in validated criteria that can be used to assess the risk on future relapse.
We identified all studies that have been published after the latest meta-analysis on this subject (2007–2012).
Findings provide new evidence for the prospective validity of different clinical criteria; pre-transplant abstinence duration, diagnosis of alcohol dependence, social support, psychiatric comorbidity. These criteria seem promising as to the prediction of relapse in alcohol after liver transplantation.

S22.3

LIVER TRANSPLANTATION FOR ALCOHOLIC LIVER DISEASE: DO WE NEED NEW RULES?

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In 2011, 1,199 liver transplantations have been performed in Germany. The most frequent indication was alcoholic cirrhosis with 28 %. Mortality of alcoholic cirrhosis is high and when patients develop ascites and hepatic encephalopathy they have a 90 day mortality of 78 %. Thus, liver transplantation is at that stage the treatment of choice. The results of liver transplantation for alcoholic liver cirrhosis are excellent with one-year-survival of approximately 82 %. The relapse into alcoholism is between 15 and 20 % depending on definition. The prerequisite for this excellent success is among others alcohol