

## **Psychological determinants and significance of physical pain in alcohol dependence**

The relationship between physical pain and alcohol dependence may be explained solely by analgesic effect of alcohol and somatic, “painful” consequences of drinking. However, as the research shows, this association is much more complex. Chronic pain represents a condition where feeling of pain no longer acts as a useful, adaptive process, but instead represents a destructing state commonly associated with negative emotional states. It is plausible that ethanol may be used not only as an analgesic agent, but also to cope (by enhancing dopamine and serotonin activity) with negative psychological states that are associated with pain.

Individuals with a chronic pain were shown to be approximately twice as likely to meet criteria for alcohol dependence as those without. Beyond diagnosable alcohol use disorders, many individuals report that they use alcohol as a useful pain self-management strategy. It was shown that more than 25% of individuals with various pain symptoms reported drinking alcohol for the purpose of analgesia. In clinical settings, the comorbidity between pain and alcohol problems is more prevalent. In one of the studies even more than 40% of patients treated for chronic pain also met the criteria of either alcohol abuse or dependence. In the population of individuals with mixed substance use disorders, as many as 38% of patients reported at least moderately severe pain during the prior 12 months. We have recently reported that moderate or severe physical pain in the past 4 weeks was reported by more than one-third of patients with primary alcohol dependence in Poland. Chronic and persistent pain was shown to be associated with poor substance-related outcomes among adults treated for substance use disorders, also for alcohol dependence. On the other hand, preliminary studies suggest that behavioral intervention aimed at coping with pain may be a useful strategy in alcohol dependence treatment.

Despite such significant associations between alcohol drinking and physical pain, only a few studies addressed this issue in clinical groups of alcohol-dependent patients. Moreover, most of the studies employed a retrospective design and was based only on self-reported measures. In addition, most of the studies did not assess the duration, cause, location or type of pain. Importantly, to the best of our knowledge in the performed studies neither pain tolerance, nor pain sensitivity was assessed. None of the studies in alcohol dependent individuals utilized on objective, behavioral measures of pain and therefore it was not possible to compare self reported beliefs of patients with more objective behavioral assessments.

The general objective of the current study is to expand knowledge on the physical pain in alcohol-dependent individuals. Also to provide comprehensive analyses of pain tolerance and sensitivity in this group, and to assess relationships between selected measures of physical pain and other, well recognized and established predictive factors in alcohol dependence.

The study group will comprise two subgroups:

1. Alcohol-dependent patients entering abstinence-based, drug-free alcohol treatment programs in residential treatment centers in Warsaw, Poland (N=150).
2. Control group of non alcohol-dependent volunteers, matched by age and gender to the alcoholic subjects (N=150) will be recruited among patients presenting to the ambulatory primary care health service.

In both groups objective (behavioral) and subjective (questionnaire) measures of impulsivity, emotional processing as well as pain sensitivity and tolerance will be utilized. Specifically, for pain tolerance: Behavioral Ischemic Pain Task (hand grip exercises with a blood pressure cuff positioned on arm and inflated to 200 mm Hg) will be used. For pain sensitivity a specially designed for this purpose tool called algometer will be utilized.

Providing new knowledge on the experience of physical pain in AD individuals, analyzing associations between specific characteristics of pain and well recognized predictors of relapse in alcohol dependence (impulsivity, emotional intelligence, emotional regulation, sleep problems, depressive symptoms, history of suicide attempts) might be of important cognitive and clinical significance. This could help to confirm on clinical, rather than theoretical and experimental ground, the neurobiological concept of alcohol-dependence as a “chronic emotional pain disorder”. This in turn, might lead to new ideas on modification and improvement of still insufficient methods of alcohol dependence treatment.