EXPLORING THE EFFICACY OF N-ACETYL CYSTEINE (NAC) IN THE TREATMENT OF ALCOHOL USE DISORDER: PROTOCOL AND PRELIMINARY DATA

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Introduction and Aims: N-acetyl cysteine (NAC) is a powerful universal antioxidant with anti-inflammatory and glutamatergic modulating properties that has received recent interest in the treatment of addictions. We aimed to conduct a series of exploratory studies to examine the efficacy of NAC in the treatment of AUD (3Clinical Trials Registration: NCT03879759).

Design and Methods: Study 1: Double blind randomised controlled trial (DBRCT) of NAC (2400mg/day) versus placebo for 3 days to reduce symptoms of alcohol withdrawal during inpatient detoxification (N = 40). Outcome measures include benzodiazepines administered, withdrawal symptoms, craving and peripheral cytokines. Study 2: DBRCT of NAC versus placebo (2400mg/day) for 28 days in the treatment of alcohol use disorder (N = 40). Outcome measures include number of heavy drinking days, abstinence, craving, mood. Study 3: Proton magnetic resonance spectroscopy was utilised to measure brain neurometabolites glutamate (Glu) and glutathione (GSH) before and after 28 days of NAC versus placebo (N = 30).

Results: Interim unblinded results of 24 enrolled participants (N = 10 for Study 1, N = 15 for Study 2). For study 2, there is an average age of 48, 2 dropped out of treatment (13%) and 1 dropped out of assessments (8%). Overall there was a 68% reduction in HDD per week from baseline 6.4 ($\pm$2.3) to follow-up 2.4 ($\pm$0.8), 63% reduction in marker of liver function (ALT) and two mild adverse events (rash, nausea).

Discussions and Conclusions: Interim analysis indicate excellent feasibility in AUD patients with high treatment compliance, study retention and minimal adverse events.

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