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Dextromethorphan attenuated inflammation and combined opioid use in humans undergoing methadone maintenance treatment.

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Abstract

Recent studies show that proinflammatory cytokines might be related to the development of opioid dependence (physiological, psychological, or both). In a double-blind, randomly stratified clinical trial investigating whether add-on dextromethorphan (60-120 mg/day) attenuated inflammation and the combined use of opioids in heroin-dependent patients undergoing methadone maintenance treatment, we evaluated whether inflammation is related to the progression of opioid dependence. All participants (107 heroin-dependent patients and 84 nondependent healthy controls) were recruited from National Cheng Kung University Hospital. Their plasma cytokine levels were measured to evaluate the effect of add-on dextromethorphan. Plasma TNF- α and IL-8 levels were significantly higher in long-term heroin-dependent patients than in healthy controls ($p < 0.001$). Chronic heroin-use-induced TNF- α and IL-8 levels were significantly ($p < 0.05$) attenuated in patients treated for 12 weeks with add-on dextromethorphan. Moreover, both tolerance to methadone and the combined use of opioids were significantly ($p < 0.05$) attenuated in patients taking dextromethorphan. We conclude that dextromethorphan might be a feasible adjuvant therapeutic for attenuating inflammation and inhibiting methadone tolerance and combined opioid use in heroin-dependent patients.

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