Introduction

MDMA (3,4-methylenedioxymethamphetamine or ‘ecstasy’) exerts prosocial effects which appear unique to this drug. In spite of abundant attention in the scientific literature, the mechanism of its prosocial effects has not been elucidated in humans. Recently, research in animals has suggested that the neuropeptide oxytocin may induce these effects.

Study design

In a double blind, randomized, crossover, and placebo-controlled study in fifteen healthy volunteers we assessed blood oxytocin and MDMA concentrations and subjective prosocial effects (‘amicability’ and ‘gregariousness’ items of the Bond and Lader Mood Rating Scales) after oral administration of 100 mg MDMA or placebo.

RESULTS. MDMA induced a robust and significant increase of blood oxytocin concentrations and an increase of subjective prosocial feelings. The correlations between these feelings and oxytocin were significantly stronger than those between these feelings and blood MDMA levels.

Limitations. Blood oxytocin concentrations were assessed, whereas central (CSF) oxytocin release is expected to mediate the typical social effects. Although several studies suggest that there may be a relation between blood and CSF oxytocin levels, this relation has not been quantified. Secondly, future studies should employ objective measures of social interaction to verify that subjects not only perceive themselves as being friendlier but in fact show increased social behavior.

MDMA induces oxytocin release in humans, which may mediate the characteristic prosocial effects of ecstasy. These findings may have implications for diseases that are characterised by impaired social functioning, such as social phobia, psychopathy and autism. Although many issues and questions regarding oxytocin and its effects need to be addressed, this neuropeptide may provide a promising insight into the neurobiology of human social behavior.