

Dissociable temporal effects of bupropion on behavioural measures of emotional and reward processing in major depressive disorder

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Background

Early in treatment serotonergic and/or noradrenergic antidepressants remediate negative biases in information processing observed in major depressive disorder (MDD). However, it remains unclear whether dopaminergic antidepressants exert similar early actions on information processing. Here we investigate the early and longer-term effects of bupropion on behavioural measures of emotional and reward processing in MDD.

Methods

41 MDDs and 40 healthy controls (HCs) participated in a repeated measures study involving open-label administration of bupropion to just the MDDs over 6 weeks. All participants completed the Emotional Test Battery and a reward task at baseline, week 2 and week 6.

Results

Only the bupropion-treated MDDs displayed a significant decrease in the misclassification of faces as sad ($F_{1, 80} = 4.09, p < 0.05; t_{41} = 2.72, p < 0.05$) and false recall of negative self-referent words ($F_{1, 81} = 5.73, p < 0.05; t_{42} = 2.12, p < 0.05$) between baseline and week 2. Conversely, bupropion was found to significantly worsen performance on the reward task between baseline and week 2 ($t_{14} = 4.17, p < 0.01$) prior to normalisation to HC level at week 6 ($t_{14} = -10.5, p < 0.001; t_{28} = -0.25, p = 0.80$).

Conclusions

Early in treatment bupropion does act to reduce negative biases in emotional processing but may worsen reward processing with the beneficial actions only occurring later in treatment. Such dissociation in the temporal effects of bupropion on emotional and reward processing has implications in the treatment of the different symptom domains of negative affect and anhedonia in MDD.