Attentional Bias Training, Antidepressant Drugs and their Combination

Can the Neurocognitive Effects of the Treatments for Anxiety be Used to Guide the Development of Novel Combination Regimes?

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Conflicts of Interest

• No conflicts of interest to report
Cognition in anxiety

• Anxious patients tend to attend to and interpret environmental information in a negative manner

• These “negative cognitive biases” are believed to be causally related to anxious symptoms

Mathews & MacLeod 2005
Measuring affective processing bias
Antidepressant Medication—Behavioural Effects

Attention to emotional stimuli

• Are one or two dots presented?

Anti-depressant effect

• Decreased attention to negative stimuli

Murphy et al. 2009
Antidepressant Medication—Neural Effects

• Citalopram reduced amygdala responses to fearful but not happy facial expressions

Harmer et al. 2006
Murphy et al. 2009
Fu et al. 2004
Cognitive Bias Modification

Attention to emotional stimuli

- Are one or two dots presented?

• Learn a different cognitive bias

MacLeod et al. 2002
CBM—Behavioural Effects

- CBM does what it says on the tin

Attention to emotional stimuli

- Are one or two dots presented?

Browning et al. 2010
CBM – Neural Effects

• Following CBM prefrontal control systems react to violations of the training rule

Browning et al. 2010
Question

• The effects of antidepressant medication and CBM appear to be mediated by different neural systems

• What happens when the two interventions are combined?
Testing Treatment Interaction

• 62 non-clinical volunteers
• Cognitive bias (memory, categorisation) measured after one week of treatment

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<th>Citalopram</th>
<th>Placebo</th>
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<tbody>
<tr>
<td>Positive CBM</td>
<td>16</td>
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<tr>
<td>Neutral CBM</td>
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Browning et al. 2012
Combining antidepressants and CBM produces interference on emotional memory (and categorisation)

Browning et al. 2012
Summary

• Cognitive biases can be altered in the laboratory using antidepressant drugs and CBM

• The effects of the interventions appear to be mediated by different neural systems

• When combined they produce an interference effect on measures of cognitive bias
Outstanding Questions

• Can these cognitive effects account for the mixed clinical picture when CBT and antidepressants are combined?

• What drug would enhance the effect of CBM?

• What psychological intervention would enhance the effect of antidepressant drugs?
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