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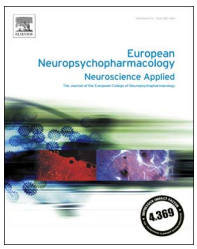

From neuroscience to evidence based psychological treatments – The promise and the challenge, ECNP March 2016, Nice, France

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Abstract
This ECNP meeting was designed to build bridges between different constituencies of mental illness treatment researchers from a range of backgrounds with a specific focus on enhancing the development of novel, evidence based, psychological treatments. In particular we wished

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to explore the potential for basic neuroscience to support the development of more effective psychological treatments, just as this approach is starting to illuminate the actions of drugs. To fulfil this aim, a selection of clinical psychologists, psychiatrists and neuroscientists were invited to sit at the same table. The starting point of the meeting was the proposition that we know certain psychological treatments work, but we have only an approximate understanding of *why* they work. The first task in developing a coherent mental health science would therefore be to uncover the mechanisms (at all levels of analysis) of effective psychological treatments. Delineating these mechanisms, a task that will require input from both the clinic and the laboratory, will provide a key foundation for the rational optimisation of psychological treatments. As reviewed in this paper, the speakers at the meeting reviewed recent advances in the understanding of clinical and cognitive psychology, neuroscience, experimental psychopathology, and treatment delivery technology focussed primarily on anxiety disorders and depression. We started by asking three rhetorical questions: What has psychology done for treatment? What has technology done for psychology? What has neuroscience done for psychology? We then addressed how research in five broad research areas could inform the future development of better treatments: Attention, Conditioning, Compulsions and addiction, Emotional Memory, and Reward and emotional bias. Research in all these areas (and more) can be harnessed to neuroscience since psychological therapies are a *learning process* with a biological basis in the brain. Because current treatment approaches are not fully satisfactory, there is an imperative to understand why not. And when psychological therapies do work we need to understand why this is the case, and how we can improve them. We may be able to improve accessibility to treatment without understanding mechanisms. But for treatment innovation and improvement, mechanistic insights may actually help. Applying neuroscience in this way will become an additional mission for ECNP.

1. Introduction

The burdens and costs of mental illness for individuals and for society are enormous (for a review see Wittchen et al., 2011). The impact of these illnesses is not reflected in the level of resources directed towards the development of treatments for mental illnesses. This is because there is perceived to be a poor scientific understanding of the basis of mental illness and its treatments (Nutt and Goodwin, 2011). One factor that prevents greater traction is the relative fragmentation of the field into conceptual silos that focus narrowly on one approach to treatment development, using a pharmacological, psychological or social framework. This has resulted in parallel but separate efforts to develop treatments, often narrowly based on only one level of analysis, which do not leverage the advances made in other fields or draw on the potentials for synergies across fields.

Table 1 illustrates where the gaps in knowledge for drug and psychological treatment are most obvious at different levels of potential understanding. A biochemical level of analysis would apply to effects on neuronal receptors or neurotransmitters; it might prove target engagement for drugs as in radiotracer studies of receptor binding or monoamine turnover, possible in principle using positron emission tomography in man. Alternatively a genetic or other molecular marker might be established simply by pragmatic association studies. A systems target could reflect behavioural or neuroimaging measures apparently related to mechanisms mediating treatment efficacy. Cognitive theory is obviously strongly invoked in psychological treatments. Finally clinical features of individual patients may predict treatment outcome. All or any of these levels of analysis may contribute to treatment innovation and personalization with drugs or psychotherapy. At present the examples (shown as + for either treatment modality) are not numerous and in some boxes are completely absent (-). However, presented in this way the common ground for the traditionally separate drug and psychotherapy approaches appears obvious and could increasingly be nourished by advances in neuroscience.

This ECNP meeting was held in March 2016. It represented only one day together, but it was designed to build bridges between different mental illness treatment researchers from a range of backgrounds with a specific focus on enhancing the development of novel, evidence based, psychological treatments. In particular we wished to explore the potential for basic neuroscience to support the development of more effective psychological treatments (Holmes et al., 2014), just as this approach is starting to illuminate the actions of drugs. To fulfil this aim, a selection of clinical psychologists, psychiatrists and neuroscientists were invited to sit at the same table. Approximately 50% of attendees at the meeting reported that they combined clinical and research work.

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