Biomarkers could predict response to antipsychotic treatment

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Researchers from the National institute for Health Research (NIHR) Biomedical Research Centre at the South London and Maudsley NHS Foundation Trust (SLaM) and King's College London have identified stress and inflammation biomarkers which might help predict whether people with psychosis will respond to existing antipsychotic medication. The findings could help clinicians distinguish individuals at greatest risk of not responding, which could aid the search for improved medications and personalised treatment plans.

Approximately three per cent of people in England have at least one episode of psychosis throughout their lives and in any given year one new case of psychosis is diagnosed for every 2,000 people. Only half of patients with psychosis respond to current medications and there is still a lack of knowledge surrounding the factors causing this lack of response.

In the study, published by Schizophrenia Bulletin, saliva and blood samples were taken from 68 patients presenting with early psychosis and 57 healthy controls. In order to establish whether symptoms had improved following the first course of antipsychotic medication, responses to treatment were measured at the beginning of the study and 12 weeks later.

Those who did not respond to early treatment showed lower levels of cortisol awakening response (CAR). CAR refers to an increase of around 50 per cent in levels of cortisol 20-30 minutes after waking in the morning. Individuals at the onset of psychosis typically show increased levels of cortisol throughout the day but a blunted CAR.

The study also found higher levels of inflammatory markers, in particular IL-6 and IFN-γ, among those who did not respond to treatment. These differences in cortisol and inflammatory biomarkers were found to persist over the first 12 weeks of treatment.

Dr Valeria Mondelli from the NIHR Maudsley Biomedical Research Centre at SLaM and King's, which also funded the study, said: 'Stress plays a recognised role in the onset of psychosis, so the biomarkers highlighted in our study could hold great potential for identifying those people less likely to respond to antipsychotic medicines.

'By pinpointing patients with high inflammation and abnormal levels of cortisol at the outset, we may be able to develop medications and personalised treatment plans which target these biomarkers.'

Psychosis is a term used to indicate mental health disorders that present with symptoms like hallucinations (such as hearing voices) or delusions (unshakeable beliefs based on the person's altered perception of reality, which may not correspond to the way others see the world). Psychotic episodes are present in conditions such as schizophrenia and bipolar

disorder.

In most cases, psychosis develops during late adolescence (15 or above) or adulthood. Treatment involves a combination of antipsychotic medication, psychological therapies and social support. Many people with psychosis go on to lead ordinary lives and for about 60 per cent of people, the symptoms disappear within 12 months from onset. However, for others, treatment is less straightforward and many do not respond to the initial antipsychotic treatment prescribed by their doctor. Early response to antipsychotic medication is known to be associated with better outcome and fewer subsequent episodes, and intervening early with effective treatments is therefore important.

More information: "Cortisol and Inflammatory Biomarkers Predict Poor Treatment Response in First Episode Psychosis" *Schizophrenia Bulletin* (March 2015) DOI: 10.1093/schbul/sbv028.

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