Author's response to reviews

Title: Explaining delusions of control: a comparison of motor related neuronal activation during and after acute psychosis.

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Author's response to reviews: see over
Dear Colleague,

Please consider the enclosed manuscript entitled **“Explaining delusions of control: a comparison of motor related neuronal activation during and after acute psychosis.”** for publication as a research article in BMC Psychiatry.

This research article uses fMRI to image patients with schizophrenia on two occasions: once while they were acutely symptomatic, and secondly once they had stabilised. This was compared with data from a healthy control group. Our findings indicate that the acutely symptomatic patient group demonstrated increased activation of the inferior parietal lobe, a region associated with processing sensory information, when compared to either the follow up data or the control group. This activation normalised at follow up at the second time point when symptoms had decreased. The results support the dysfunctional feed-forward model of positive psychotic symptoms.

‘Delusions of control’ refer to the experience of one’s own actions being controlled by someone else. These types of experience are quite often present in psychosis. However, despite their importance, relatively little is known about the neurobiology of how they occur. Current thinking suggests that they arise due to errors on our ‘feed forward’ cognitive model. This model argues that when it comes to our own actions, our brains attenuate the neuronal activation in the sensorimotor cortex because it is self-generated. Normally, this attenuation allows us to concentrate on external phenomena, rather than introspectively focusing on our own self-generated actions. However, in psychosis, the brain can fail to attenuate this self-generated sensorimotor activity, and subsequently misidentify its origin. Consequently, such stimuli may be experienced by the person as externally generated, or in other words, the person feels like they are not controlling their own actions.

We believe that this will be of interest to your readers because relatively little is known about delusions of control, but yet they are important first-rank symptoms. Furthermore, we use a novel paradigm to understand neural events during psychosis.

We confirm that all authors have had access to all data in the study and that they hold final responsibility for the decision to submit for publication; all authors have participated
in the preparation of the manuscript and have seen and approved the final version and that there are no conflicts of interest.

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We look forward to hearing from you soon,

Luke Sheridan Rains,
On behalf of the authors