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Amplitude of hippocampal low frequency fluctuations in early psychosis: a two-year follow-up study

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Background: Hippocampal hyperactivity due to an underlying excitation/inhibition imbalance has been proposed as a biomarker and treatment target for schizophrenia. The resting state fMRI signal amplitude is correlated with glucose metabolism as well as oscillatory activity and thus may serve as a proxy measure for hippocampal hyperactivity. Previous work has shown that individuals with schizophrenia have increased fMRI amplitude in the hippocampus, but it is unclear whether this varies by hippocampal subregion and whether it changes with illness progression. **Methods:** We measured resting state hippocampal fMRI activity with the amplitude of low frequency fluctuations (ALFF) in 153 individuals (81 early psychosis, 72 healthy control), with 123 individuals followed for 2 years. ALFF was extracted from the anterior, posterior, and total hippocampus and analyzed using linear mixed models. **Results:** We found increased hippocampal ALFF in the early psychosis group compared to healthy controls at baseline, but this effect was not present after 2 years. There were no group differences by anterior/posterior hippocampal subregion. **Conclusions:** Our results support a model in which intrinsic activity within the hippocampus is increased already in the early stage of psychosis but varies with illness state.

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