BRAIN NETWORKS UNDERLYING HALLUCINATIONS IN SCHIZOPHRENIA: A MULTISITE HALLUCINATIONS EXPERIENCE STUDY

There is continuing debate regarding the brain networks underlying hallucinations in psychosis. Although there have been a number of reviews and meta-analyses carried out, it has not been demonstrated that the network of activations attributed to the hallucinating brain were not those involved in responding to indicate the start/end of the hallucination. In the current study, we analyzed data from two sites (Melbourne and Groningen) that had collected data as patients were hallucinating in the fMRI scanner, using constrained principal component analysis for fMRI (fMRI-CPCA). The start and end of the hallucinating events were indicated by button press (Melbourne, with listening to sound files as a control) and ball squeeze (Groningen). The principal that we used to separate hallucination-event signal from noise was the requirement for a duration-dependent fMRI signal, by comparing network activation for hallucinating with short duration with those with longer duration. In the first dataset, we retrieved duration-dependent signal for hearing sound files, but not for hearing voices (Melbourne). In the second dataset, we retrieved duration-dependent signal, but that network matched the response network (Groningen). We concluded that fMRI cannot distinguish between ongoing healthy internal dialogue, and those associated with hallucinations, but instead retrieved the brain network for generating responses indicating the start and end of an experienced hallucination.