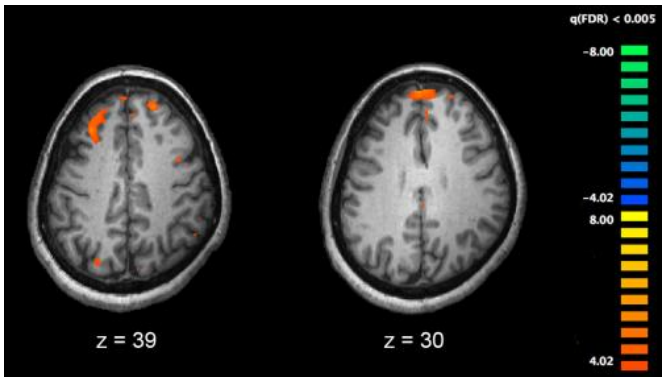
Researchers find differences in gut microbiomes in people with schizophrenia

7 February 2019, by Bob Yirka



Functional magnetic resonance imaging (fMRI) and other brain imaging technologies allow for the study of differences in brain activity in people diagnosed with schizophrenia. The image shows two levels of the brain, with areas that were more active in healthy controls than in schizophrenia patients shown in orange, during an fMRI study of working memory. Credit: Kim J, Matthews NL, Park S./PLoS One.

A team of researchers affiliated with several institutions in China and one in the U.S. has found that people with schizophrenia have differences in their gut biomes compared to people without the mental disorder. In their paper published in the journal *Science Advances*, the group describes testing schizophrenia patients and experiments they conducted with mice, and what they found.

Schizophrenia is a mental disorder characterized by hallucinations, delusions, disordered thinking and muted emotional expression. It is believed that 0.5 to 1 percent of all people worldwide have the disorder, which has no cure. Scientists have studied the disorder for many years, but it was only recently that a possible connection between the gut biome and the disorder came under scrutiny. In this new effort, the researchers found differences between the gut biomes of people with and without schizophrenia.

To learn more about the possible connection between the gut biome and schizophrenia, the researchers collected stool samples from 53 schizophrenia patients who were taking medication to reduce symptoms. They also collected five stool samples from schizophrenia patients who were not taking medication and from 69 people who did not have schizophrenia.

The researchers performed gene sequencing on the stool samples to isolate gut biome bacteria. They divided the bacteria they found into operational taxonomic units (OTUs). They report that out of 854 OTUs, they found 56 that appeared only in schizophrenia patients and 64 that appeared only in the control group. They also noted that the gut biomes of the schizophrenia patients had overall lower diversity than the control group.

Taking a closer look, the researchers found a smaller subset of bacteria that were clearly different between schizophrenia patients and those without the disorder. They report that when they introduced samples of the subset from the schizophrenia patients into the biomes of healthy mice, the mice displayed behavior changes.

The researchers claim that their results show that people with schizophrenia have differences in their gut biomes and that those differences may be associated with schizophrenia symptoms. Furthermore, they suggest that certain bacteria in the biome may be associated with schizophrenia -related symptoms due to interactions with microbiota gut-brain amino acids, and possibly lipid metabolic pathways.

More information: Peng Zheng et al. The gut microbiome from patients with schizophrenia modulates the glutamate-glutamine-GABA cycle and schizophrenia-relevant behaviors in mice, *Science Advances* (2019). DOI: 10.1126/sciadv.aau8317

APA citation: Researchers find differences in gut microbiomes in people with schizophrenia (2019, February 7) retrieved 23 August 2022 from https://medicalxpress.com/news/2019-02-differences-gut-microbiomes-people-schizophrenia.html