Hippocampal regional differences in un-medicated patients with first episode psychosis

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Methods

- In the present study 27 participants were recruited from the Centre for Addiction and Mental Health in Toronto.
- Participants had an average age of 26.7 years (SD = 5.9 years).
- Participants belonged to one of three groups, healthy control, normative women with schizophrenia and women with schizophrenia who were both non-significant (p = 0.053, p = 0.482).
- Weak to moderate correlations (r < 0.4) were found between CA2/CA3 region and some aspects of WCST (r = 0.32 or r < 0.46) and HATA RBANS Attention (r = 0.44) and CA2/CA3 RBANS visuospatial memory (r = 0.42).

Purpose

- Schizophrenic patients have been found to have altered brain structures with many regions having reduced volumes when compared to their healthy counterparts.
- Recent research suggests that schizophrenic individuals have reduced grey matter volumes in the frontal lobes, subcortical and limbic region (Birur et al., 2017).
- However, the hippocampal responsibility for memory and spatial recognition make it the current focus for schizophrenia research.
- It is believed that there are regional differences in hippocampal reductions because each region projections to various other neuroanatomical structures, suggesting different functionality (Kalmady et al., 2017).

Results

- **Initial findings indicate a significant difference of size between groups in the Hippocampus Amygdala Transition Area (HATA) (p = 0.04) as well as a left side increase in the HATA region (p = 0.002).
- # A significant main effect of sex difference in the CA2/CA3 region was observed (p = 0.037).
- These findings are consistent with current literature (Haukvik et al., 2015; Ho et al., 2017; Mathew et al., 2014; Ota et al., 2017).
- However, normative men compared to men with schizophrenia and normative women compared to women with schizophrenia were both non-significant (p = 0.053, p = 0.482).

Conclusions

- The results suggest there are volume changes in anterior regions of the hippocampus in individuals with schizophrenia as is reflected in the literature.
- The results also suggest these changes are due to the disease rather than an effect of medication.
- Further work is needed understand how these regional volume differences relate to symptoms experienced by individuals with schizophrenia.

References