

Abstract

Background: Recent trials of anti-glucocorticoid drugs demonstrated significant improvement in cognitive impairment in some mental patients. Literature suggests a close relationship between schizophrenia and elevated cortisol level on the one hand, and cognitive impairment in schizophrenia is correlated with poor functional outcome on the other hand. It is unclear whether cognitive impairment of the illness is indeed mediated through elevated cortisol level in susceptible patients.

Aims: To systematically review studies of the association of cortisol level with cognitive impairment in schizophrenia.

Method: A search of MEDLINE, PsycINFO, EMBASE and other relevant electronic libraries and databases were supplemented by manual search of bibliographic of included articles, conference proceedings, theses and dissertation collections and contacts with authors. Two independent reviewers extracted data and assessed the methodological quality of the included studies. Correlation coefficients were pooled using a random-effects model with regards to different cognitive tests. The association was then tested with potential moderators including patient clinical variables and study methodological quality characteristics.

Results: The search yielded ten observational studies on the association of cortisol and cognitive performance in schizophrenia. Of these studies, seven studies, enrolling 179 subjects, contained sufficient data and results for methodological quality assessments and meta-analysis. The pooled effect size of association of morning

cortisol and performance on memory test was ranged small to medium ($r=-.26$, 95% CI, $-.41$ to $-.10$). The effect was consistently and statistically significant in moderator analyses and sensitivity analyses. In addition, some studies showed that cortisol level was associated with other cognitive domains, including attention and executive function, in schizophrenia. The direction of effect in these regards were however inconsistent.

Conclusions: Elevated morning cortisol is associated with poor memory performance in some schizophrenic patients, which is in line with its association with other psychopathology of the illness. Further researches are required to confirm if such association is specific and causal in schizophrenia as there was no control group in most of the studies.