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Cognition impairment in schizophrenia patients with tardive dyskinesia is associated with plasma superoxide dismutase activity

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Long-term anti-psychotic treatment for schizophrenia is often associated with the emergence of tardive dyskinesia (TD) and TD presence is also accompanied by more severe cognitive impairment. Oxidative stress-induced damage may be involved in the development of TD and contribute to cognitive deficits in schizophrenia. We examined the role of oxidative stress in relation to TD and cognitive deficits in schizophrenia using plasma manganese superoxide dismutase (MnSOD) as a biomarker. We recruited 83 male chronic patients with (n=32) and without TD (n=51) meeting DSM-IV criteria for schizophrenia and 58 male control subjects. We examined the repeatable battery for the assessment of neuropsychological status (RBANS) and MnSOD activity for all subjects. Positive and negative symptom scale (PANSS) and the abnormal involuntary movement scale (AIMS) were assessed in the patients. MnSOD activity was lower in patients with TD than non-TD and either TD or non-TD group had lower MnSOD levels than controls (all $p<0.05$). Patients with TD had lower RBANS total ($p<0.05$) and Visuospatial/Constructional subscale scores than non-TD patients ($p<0.01$) and either TD or non-TD group scored lower than the controls on all RBANS subscales (all $p<0.001$) except for the Visuospatial/Constructional index. Multiple regression analysis showed that in either TD or non-TD group, MnSOD was an independent contributor to the RBANS total score (both $p<0.05$). These findings suggest that TD patients suffered oxidative stress and cognition impairment at a more severe level than non-TD patients. Oxidative stress might serve as a functionally linking node between TD development and cognition dysfunction in schizophrenia.

Biography

Jingqin Wu has completed her PhD in 2009 from the University of Sydney and is a Research Fellow at the Universtiy of Newcastle, Australia. She specialises in genome-wide association and transcriptome analyses of schizophrenia and infectious dieseases (HIV and HCV). She is a NHMRC early career fellow and has published more than 35 papers in reputed journals and has been serving as an Editorial Board Member of Austin Virology and Retro Virology.

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