

MEETING ABSTRACT

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Brain cell membrane motion-restricted phospholipids in patients with schizophrenia who have seriously and dangerously violently offended

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Background

This study directly assessed, for the first time, whether, as expected under the membrane phospholipid hypothesis of schizophrenia, there was a change in brain cell motion-restricted membrane phospholipids in vivo in male forensic patients with schizophrenia who had seriously and violently offended (homicide, attempted murder, or wounding with intent to cause grievous bodily harm) while psychotic, by quantification of the broadband resonance signal from 31-phosphorus neurospectroscopy scans.

Materials and methods

Cerebral 31-phosphorus magnetic resonance spectroscopy was carried out in 15 male patients with schizophrenia who had seriously and violently offended (homicide, attempted murder, or wounding with intent to cause grievous bodily harm) while psychotic and in 12 age- and sex-matched normal control subjects. Data were obtained using a 1.5 T Marconi Eclipse system with a birdcage quadrature head coil dual-tuned to proton (64 MHz) and 31P (26 MHz). T1-weighted magnetic resonance images were acquired for spectral localization. Spectra were obtained using an image-selected in vivo spectroscopy sequence (TR = 10 s; 64 signal averages) localized on a 70 × 70 × 70 mm³ voxel.

Results

There was no significant difference in the broad resonances between the two groups, with the mean (standard error) percentage broadband signal for the patients being 57.8 (5.6) and that for the control subjects 57.7 (6.0). The phosphomonoesters and phosphodiester narrow signals also did not differ between the groups.

Conclusions

Our data suggest that the membrane phospholipid hypothesis of schizophrenia may not apply to the subgroup of schizophrenia patients who have seriously and violently offended.

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