The Effect of Deep Pressure Touch on Sensory Processing Difficulties for Persons with Chronic Schizophrenia

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Introduction
Sensory gating (P50) serves a critical role in illustrating the sensory processing to filter out extraneous stimuli. Sensory processing difficulties are a robust finding as a consequence to have difficulty calming and regulating in schizophrenia patients. Deep pressure touch applied by weighted vest (WV) is a sensory adaptive technique which designs to provide a calming effect for persons with sensory processing problem. Although effect of deep pressure touch to ameliorate sensory processing impairments are observed, theoretical supports in this aspect are relatively rare. The aim of this study is to investigate the effect of deep pressure touch on sensory processing difficulties in persons with chronic schizophrenia.

Study Design and Procedures

Subjects
Five chronic schizophrenia inpatients (5 male; mean, 33.6 years; range, 29-44 years) and five healthy controls (4 female and 1 male; mean, 35.6 years; range, 30-46 years) were invited to participate this pretest-posttest design study.

Experimental design
Paired-click paradigm

Fig. 1. Auditory P50 gating is measured by the paired-click paradigm in the present study. Sensory gating is calculated as ratio-gating of electroencephalic amplitudes (S2/S1 ratio; S1 and S2, amplitudes induced by the first and second auditory stimuli, respectively).

Intervention
Weighted vest with 1/10 of body weight was applied during a 30-min purposeful activity.

Statistical Analysis
Non-parametric analysis was used to investigate the difference between pre- and post-test conditions.

Results

<table>
<thead>
<tr>
<th>Measures</th>
<th>Schizophrenia Pretest</th>
<th>Schizophrenia Posttest</th>
<th>Control Posttest</th>
<th>P Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio</td>
<td>74.46(45.04)</td>
<td>45.82(3.53)*</td>
<td>31.53(8.67)*</td>
<td>0.001</td>
</tr>
<tr>
<td>Amplitude S1</td>
<td>2.71(1.79)</td>
<td>3.13(2.23)</td>
<td>3.22(1.25)</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>1.91(1.25)</td>
<td>1.43(0.96)</td>
<td>1.04(0.49)</td>
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</tr>
<tr>
<td>Latency</td>
<td>60.55(24.96)</td>
<td>57.62(9.29)</td>
<td>64.65(18.64)</td>
<td>0.001</td>
</tr>
<tr>
<td>S1</td>
<td>75.80(20.45)</td>
<td>81.84(24.24)</td>
<td>56.16(17.60)</td>
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</tr>
<tr>
<td>S2</td>
<td></td>
<td></td>
<td></td>
<td>0.05</td>
</tr>
</tbody>
</table>

*P<0.05

Discussion
- Our findings corroborate the sensory processing difficulties in chronic schizophrenia.
- Changes of P50 S2/S1 ratio after WV is primarily attributed to the increase of S1 amplitude.
- Increase of sensory gating abilities may be an increased response to the initial stimulus due to the application of WV during purposeful activity.

Conclusion
The application of deep pressure touch provides a positive effects on sensory processing in schizophrenia patients.

References