Young Investigator Research Award Nominee

Abstract 14

Evaluation of Cardiac Autonomic Balance in Major Depression Treated with Different Antidepressant Therapies: A Study with Heart Rate Variability Measures

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Background: Depression, one of the most common psychiatric disorders, is known to increase concomitant cardiac mortality. Cardiac autonomic involvement in depression has been suggested as an explanation for the increased cardiac morbidity in depression. Clinical improvement produced by antidepressant therapy could alter the autonomic balance too.

Objective: To investigate the effect of three modes of antidepressant management—ie, repetitive transcranial magnetic stimulation (rTMS), selective serotonin reuptake inhibitors (SSRIs), and tricyclic antidepressants (TCAs)—on autonomic function measured by heart rate variability (HRV) in drug-naïve patients with major depression.

Methods: 94 drug-naïve patients suffering from major depression (based on DSM IV-TR) were recruited. Their HRV and Hamilton Depression Rating Scale (HDRS) scores were measured before and 1 month after two modes of antidepressant therapy. Group A (n = 30; age = 32.27 ± 10.81 years; 21 males) received rTMS, which consisted of magnetic stimulation of the left dorsolateral prefrontal cortex with 15-Hz frequency, 10-sec trains, and 10 such trains for 12 days. Group B (n = 32; age = 31.44 ± 8.36 years; 18 males) received 10 to 20 mg of the SSRI escitalopram at bedtime daily for 1 month. Group C (n = 32; age = 36.72 ± 7.97 years; 11 males) received 75 to 150 mg of imipramine/amitriptyline (TCA therapy) at bedtime daily for 1 month.

Results: The patients showed a significant and comparable clinical improvement as assessed by HDRS after all three modes of antidepressant therapy. However, there was a significant intergroup variation in terms of HRV measures. The LF/HF ratio (indicator of sympathovagal balance) significantly decreased in the rTMS group (from 1.66 ± 0.81 to 1.19 ± 0.69), whereas it significantly increased in the TCA group (from 1.68 ± 0.93 to 2.09 ± 1.55). There was no significant change in the LF/HF ratio with SSRI therapy (from 1.68 ± 1.03 to 1.46 ± 1.21).

Conclusion: Although there were comparable effects in terms of clinical measures between these three therapy groups, cardiac autonomic function measures showed differential involvement. The rTMS group showed an improvement in sympathovagal balance, whereas the TCA group showed worsening of the balance. Since depression is one of the risk factors for development of heart disease, this alteration of sympathovagal balance has to be kept in mind when designing antidepressant therapies for patients.