Immune-inflammatory markers in patients with seasonal affective disorder: effect of light therapy

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摘要

Abstract

BACKGROUND: There is increasing evidence that an activation of the immune-inflammatory system is involved in the pathophysiology of depressive disorders. The purposes of this study were to (1) compare immune-inflammatory markers in patients with seasonal affective disorder (SAD) with those in matched normal controls; and (2) examine the effects of light therapy on the immune-inflammatory markers in patients with SAD. METHODS: Plasma concentrations of interleukin-6 (IL-6), soluble IL-6 receptor (sIL-6R) and soluble IL-2 receptor (sIL-2R) were measured in 15 patients with SAD and 15 age- and sex-matched normal controls. Of the 15 patients, 14 had repeated blood sampling for these variables following 2 weeks of light therapy. RESULTS: We found that patients with SAD had significantly increased IL-6 levels compared to normal controls ($P<0.0005$). There was a trend toward increased sIL-2R in patients with SAD ($P=0.09$). There was no significant difference in sIL-6R level between the two diagnostic groups ($P=0.18$), but the product term (IL-6xsIL-6R) was significantly higher in patients with SAD than that in normal control controls ($P<0.0003$). Furthermore, all 14 patients who completed the study improved with 2 weeks of light therapy and nine of them (64%) had 50% reduction in score of the Hamilton Depression Rating Scale-SAD version post-treatment compared to baseline. However, the initially increased immune markers in SAD patients were not significantly altered by the therapeutic light therapy. LIMITATIONS:This study was limited to a small sample size and other immune inflammatory markers should be measured for further evidence of immune activation in seasonal depression. CONCLUSIONS: Our results of increased IL-6, IL-6xsIL-6R, and sIL-2R in patients with SAD suggest an activation of the immune-inflammatory system in winter depression, which is not altered by 2 weeks of successful light therapy.