

ABSTRACT

OBJECTIVE: Bipolar disorder (BD) is associated with increased rates of cardiovascular disease (CVD). Brain-derived neurotrophic factor (BDNF) and inflammatory markers are leading biomarkers in BD. We examined whether these biomarkers underlie the link between BD and CVD proxies among adolescents with bipolar spectrum disorders.

METHODS: Subjects were 60 adolescents, 13-19 years old (40 with BD and 20 healthy controls [HCs]). Semistructured interviews determined diagnoses based on DSM-IV. Serum was assayed for BDNF, interleukin-6 (IL-6), and tumor necrosis factor-α (TNF-α). Carotid intima media thickness (cIMT) and flow-mediated dilation were assessed using ultrasound. Procedures were conducted at a subspecialty clinic (January 2011-May 2014).

RESULTS: Adolescents with BD had significantly greater waist circumference (BD: 81.72 cm [11.67 cm], HC: 75.64 cm [8.63 cm]; U = 547.5, P = .021), body mass index (BMI) (BD: 25.50 kg/m² [5.29 kg/m²], HC: 21.76 kg/m² [3.43 kg/m²]; U = 608.5, P < .0001), pulse pressure (BD: 42.31 mm Hg [10.57 mm Hg], HC: 33.84 mm Hg [6.69 mm Hg]; U = 561.5, P < .001), and IL-6 (BD: 8.93 pg/mL [7.71 pg/mL], HC: 4.96 pg/mL [6.38 pg/mL]; U = 516.0, P < .0001) than HC adolescents. Subjects with BD-I (n = 14) and BD-II (n = 16) had greater IL-6 versus HCs (F₃,₅₁ = 5.29, P = .003). Controlling for BMI and age did not alter these findings. IL-6 was higher in symptomatic (n = 19) and asymptomatic BD (n = 21) versus that found in HCs (F₂,₅₂ = 7.96, P = .001). In symptomatic BD, lower BDNF was associated with greater mean cIMT (ρ = -0.507, P = .037).

CONCLUSIONS: This study found evidence of increased inflammation among adolescents with BD. While present findings suggest a potential interplay between symptomatic status, biomarkers, and atherosclerosis proxies, there were no significant differences in cIMT or flow-mediated dilation in adolescents with BD compared to HCs. This may indicate that there is potential opportunity for CVD prevention strategies in adolescents with BD.