Associations of pro-inflammatory cytokines and depressive symptoms in major depression and bipolar disorder: a 1-year follow-up study

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Background
Cross-sectional studies have found that individuals with major depressive disorder (MDD) and bipolar disorder have elevated levels of pro-inflammatory cytokines. Due to a relative dearth of longitudinal studies, the directionality of the relationship between mood and inflammation is still unclear.

Aims & Objectives
We aimed to investigate the the longitudinal associations of pro-inflammatory markers with depression severity and mania severity.

Methods
We evaluated the longitudinal associations between symptoms and pro-inflammatory cytokines, including C-reactive protein (CRP), soluble interleukin-6 receptor (sIL-6R), soluble interleukin-2 receptor, soluble tumor necrosis factor-α receptor type 1 (sTNF-αR1), and monocyte chemoattractant protein-1 among 39 patients with MDD and 132 patients with bipolar disorder (BD) in a 1-year prospective study. During the baseline and follow-up visits, all participants received assessment with Young Mania Rating Scale, and Montgomery Asberg Depression Rating Scale (MADRS), and underwent blood draws to quantify serum levels of the pro-inflammatory markers.

Results
Among patients with MDD, baseline levels of sTNF-αR1 were positively associated with MADRS total score at 1-year follow-up, even after adjustment for age, sex, duration of illness, history of suicide attempts, body mass index, levels of pro-inflammatory markers, metabolic profile and psychotropic medications at baseline. Among male BD patients (n = 44), baseline sIL-6R and MCP-1 level positively correlated with MADRS total score at 1-year follow-up. Among depressed BD patients (n = 65), baseline MADRS total score positively correlated with levels of sTNF-αR1 and CRP.

Discussion & Conclusion
Our results provided evidence for the bidirectionality of inflammation and depression among patients with MDD and BD. More longitudinal research is needed to replicate our findings.