Effect of atorvastatin on plasma NT-proBNP and inflammatory cytokine expression in patients with heart failure


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ABSTRACT. The aim of this study was to explore the effect of atorvastatin intervention on plasma N-terminal pro-B-type natriuretic peptide (NT-proBNP) and inflammatory cytokine levels in patients with heart failure (HF). One hundred and twenty-three HF patients were selected from our hospital and randomly divided into control (N = 61) and observation (N = 62) groups; the former received conventional treatment, while the latter were given conventional treatment combined with atorvastatin. Plasma NT-proBNP, inflammatory cytokines [high-sensitive C-reactive protein (hs-CRP), interleukin (IL)-6, IL-10] and cardiac function [left ventricular end-diastolic dimension (LVEDD), left ventricular ejection fraction (LVEF), end-diastolic maximum flow rate ratio (E/A)] were compared among groups. The effective rate of treating HF significantly increased after atorvastatin treatment. The plasma NT-proBNP, IL-6, IL-10, hs-CRP, and LVEDD levels significantly decreased (P < 0.05), while the LVEF and E/A levels significantly increased (P < 0.05) in the observation group compared to the control group and before intervention. The NT-proBNP and cytokine levels significantly differed among patients with different classes of heart function (P < 0.05);
the NT-proBNP and cytokine levels increased with the severity of heart function. Pearson’s correlation analysis revealed a negative correlation between the NT-proBNP and inflammatory cytokine levels and LVEF and E/A values, and a positive correlation between these factors and LVEDD (P < 0.05). In conclusion, atorvastatin significantly improves cardiac function; the mechanism atorvastatin action was related to the decrease in plasma NT-proBNP and inflammatory cytokine levels.

**Key words:** Atorvastatin; Heart failure; NT-proBNP; Inflammatory cytokine