Although fluoride induced inflammatory reactions have been shown in animals and in vitro humans, there are few studies about fluoride induced inflammatory reactions in human beings at clinical setting. We aimed to measure the plasma neopterin, a marker of activation of the monocyte/macrophage system, and high sensitivity C-reactive protein (hs-CRP) levels in patients with endemic fluorosis to investigate the possible role of inflammatory processes (monocyte/macrophage activity) in the underlying pathophysiology of fluoride toxicity at clinical level. Plasma neopterin and hs-CRP levels were determined in endemic fluorosis patients and control subjects. Plasma neopterin levels were significantly higher among patients with endemic fluorosis when compared with control group (2.40 ± 0.66 vs. 1.63 ± 0.27 ng/mL respectively; p < 0.001) and plasma hs-CRP levels were also significantly higher among patients with endemic fluorosis when compared with control group (2.41 ± 1.23 vs. 1.93 ± 0.64 mg/L respectively; p < 0.001). Plasma neopterin levels were positively correlated with urine fluoride levels (r = 0.67, p < 0.001) and serum hs-CRP levels were positively correlated with urine fluoride levels (r = 0.36, p < 0.001). We have found that plasma neopterin and hs-CRP levels are increased in patients with endemic fluorosis. We have concluded that inflammation play an important role in the pathophysiology of fluoride toxicity in patients with endemic fluorosis.