

## Rosuvastatin Improves Endothelial Progenitor Cells in Rheumatoid Arthritis

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**Abstract :** Background: Endothelial Progenitor Cells (EPCs) are depleted and contribute to increased cardiovascular (CV) risk in rheumatoid arthritis (RA). Statins exert a protective effect in CAD partly by promoting EPC mobilization. This vasculoprotective effect of statin has not yet been investigated in RA. We aimed to investigate the effect of rosuvastatin on EPCs in RA. Methods: 50 RA patients were randomized to receive 6 months of treatment with rosuvastatin (10 mg/day, n=25) and placebo (n=25) as an adjunct to existing stable antirheumatic drugs. EPCs (CD34+/CD133+) were quantified by Flow Cytometry. Inflammatory measures included DAS28, CRP and ESR were measured at baseline and after treatment. Lipids and pro-inflammatory cytokines (TNF- $\alpha$ , IL-6, and IL-1) were estimated at baseline and after treatment. Results: At baseline, inflammatory measures and pro-inflammatory cytokines were elevated and EPCs depleted among both groups. At baseline, EPCs inversely correlated with DAS28 and TNF- $\alpha$  in both groups. EPCs increased significantly ( $p < 0.01$ ) after treatment with rosuvastatin but did not show significant change with placebo. Rosuvastatin exerted positive effect on lipid spectrum: lowering total cholesterol, LDL, non HDL and elevation of HDL as compared with placebo. At 6 months, DAS28, ESR, CRP, TNF- $\alpha$  and IL-6 improved significantly in rosuvastatin group. Significant negative correlation was observed between EPCs and DAS28, CRP, TNF- $\alpha$ , and IL-6 after treatment with rosuvastatin. Conclusion: First study to show that rosuvastatin improves inflammation and EPC biology in RA possibly through its anti-inflammatory and lipid lowering effect. This beneficial effect of rosuvastatin may provide a novel strategy to prevent cardiovascular events in RA.

**Keywords :** RA, Endothelial Progenitor Cells, rosuvastatin, cytokines

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