INTRODUCTION AND AIMS: Hemodialysis vascular access failure is a common problem associated with increased morbidity in end stage renal disease (ESRD) patients. Although studies report neointimal hyperplasia in experimental models, which may reduce access failure. Their effects in ESRD patients remain conflicting. We performed this meta-analysis to assess the effects of statin on hemodialysis vascular access outcomes.

METHODS: A systematic review was conducted in MEDLINE, EMBASE, Cochrane databases from inception through November 2017 to identify studies that evaluated outcomes of hemodialysis vascular access (AV fistula or graft) in patients on statins. Effect estimates from the individual study were extracted and combined using random-effect, generic inverse variance method of DerSimonian and Laird.

RESULTS: 7 observational studies and 1 post-hoc analysis of a randomized controlled trial with a total of 25,705 patients (20,718 with AV fistula and 4987 with AV graft) were enrolled. Statin use was associated with significantly decreased risk of overall AV fistula failure with pooled OR of 0.80 (95% CI, 0.70-0.91, I²= 34.3). There were no significant associations of statin use with AV graft failure or primary failure of AV fistula with pooled ORs of 1.07 (95% CI, 0.97-1.08, I²=0) and 0.92 (95% CI, 0.57-1.46, I²=52.9), respectively. We found no publication bias as assessed by the funnel plots and Egger’s regression asymmetry test with p = 0.93 and 0.60 for the risks of AV fistula failure and AV graft failure, respectively.

CONCLUSIONS: Statin use is associated with 20% lower risk of AV fistula failure. However, there are no significant associations of statin use with AV graft failure or primary failure of AV fistula.