Purpose: To compare the efficacy of 0.5 mg intravitreal ranibizumab injection (IRI) alone and combination treatment (IRI plus 10 mg subtenon triamcinolone acetonide injection-STAI-) with Heidelberg Retinal Tomography III (HRT III) Macular Edema Module in patients with diffuse clinically significant diabetic macular edema (DDME). Methods: In a prospective randomized clinical trial 66 eyes of 64 patients were included. Eligible eyes were randomly assigned to IRI treatment group (34 eyes) or IRI plus STAI combined treatment group (32 eyes). HRTs were performed at baseline and 1 month after the treatment. Macular edema index (MEI) of central macular zone was calculated. Results: 1 month after the treatment both of the groups showed significantly reduction in MEI values but the reductions for IRI-STAI treatment group were significantly more than IRI alone (p<0.01). No patient developed endophthalmitis, uveitis or intraocular pressure elevation higher than 21 mmHg. Conclusions: IRI or IRI plus STAI brought about significant macular edema reduction. But short term results of the combination treatment seem to be more favorable in the treatment of DDME. Further study is needed to assess the long term efficacy, safety and retreatment. We have also suggested a relatively simple method of documenting change in DME with HRT Macular Edema Module.