Purpose: To compare efficacy and evaluate safety of intravitreal injection of ranibizumab (0.5 mg) plus panretinal photocoagulation (PRP) versus PRP alone in the regression of neovascularization in eyes with high risk proliferative diabetic retinopathy.

Setting: Thirteen clinical sites from Portugal (4 sites), United Kingdom, France and Italy were included in this 1-year prospective, randomized, multicenter, open-label, phase II/III trial to assess efficacy and safety of ranibizumab plus PRP versus PRP alone in the treatment of subjects with high risk proliferative diabetic retinopathy.

Methods: Eighty-seven patients with a diagnosis of high-risk proliferative diabetic retinopathy were included in the study. After inclusion, patients were randomized into one of two groups: Study Group, where subjects received three intravitreal injections of ranibizumab (LUCENTIS, Novartis) between Month 0 and Month 3 (Loading Phase) combined with the standard PRP treatment, ie, 1 mandatory laser session 2±1 weeks after 1st injection and a maximum of 2 laser sessions, one 2±1 weeks after the 2nd injection and another 2±1 weeks after the 3rd injection. From Month 3 to Month 11 (9-months Follow-up) patients were treated pro-reno with ranibizumab plus 1 PRP session 2±1 weeks after the injection, OR Control Group, where subjects received between Month 0 and Month 2 the standard PRP treatment with 1 mandatory laser session in Month 0 and more laser sessions, as needed, until Month 2 to complete PRP treatment.

After completing the PRP treatment, PRP sessions could have been repeated from Month 3 to Month 11. The primary objective of this study is to compare the regression of the neovascularization (NV) area between the two treatment groups. Other parameters include: best-corrected visual acuity (BCVA) change from baseline; time to complete NV regression; changes in retinal thickness; need of treatment for diabetic macular edema; need of vitrectomy.

Results: 87 patients were included being 55 males and 32 females with mean age of 55.2 ± 13 years-old. 10 patients have prematurely ended their participation in the study where 8 patients belonged to the Control Group (PRP alone). The main reason for early discontinuation was disease progression (n=9). The difference of neovascularisation area (total and also disc neovascularisation and elsewhere neovascularisation) from Baseline to Month 12 was clinically significant between Study Group (ranibizumab plus PRP) and Control Group (PRP alone) (p≤0.041), being the reduction of neovascularisation greater in the Study Group.

The mean number of PRP treatments of the Control Group was 4.4 ± 1.6 and of the Study Group was 3.5 ±1.3, being clinically significant. No relevant serious adverse events were observed.

Conclusions: This prospective, randomized, multicenter study showed that PRP associated with ranibizumab was more effective than PRP alone in the regression of neovascularisation area in HR-PDR eyes during one year follow-up. The combination of PRP associated with ranibizumab seems to be safe in this population.

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