Summary and Conclusion

To summarize the results of the current study; this study was conducted on 40 eyes suffering from proliferative diabetic retinopathy complicated by vitreous haemorrhage. 20 eyes were subjected to intravitreal bevacizumab (Avastin) injection (IVB) by a dose of 1.25mg/0.05ml in the usual sterile fashion after an informed consent and this was considered as the study group. The other 20 eyes were used as the control group and were managed in the traditional conservative manner waiting for spontaneous absorption of vitreous haemorrhage.

All patients were subjected to full ophthalmic examination including Snellen's BCVA, complete slit lamp examination, IOP measurement, fundus examination by indirect ophthalmoscope and coloured fundus photography. All patient s were also subjected to posterior segment evaluation by B – scan ultrasonography and those who show evidence of fibrous traction bands were excluded from the study.

Patients from both groups were re-evaluated at regular intervals, 1 day, 1 week, 2 weeks, 1 month and 3 months post injection for study group and post inclusion for control group. Follow up parameters include Snellen's BCVA, slit lamp, IOP, fundus, coloured photography and B-scan US. Patients who show progressive tractional fibrous bands on B-scan throughout the follow up were withdrawn from the study and were treated by pars plana vitrectomy.

Patients from both groups who show no absorption of haemorrhage after follow up period were also managed by PPV. After 1 month of injection,

Patients from study group that show no/minimal absorption of vitreous haemorrhage as evidenced by minimal improvement of BCVA and fundus view were re injected by the same dose and under the same sterile condition as the first injection. Patients from both groups that show acceptable absorption of VH just enough to obtain retinal details were treated by argon laser pan retinal photocoagulation (PRP).

To summarize the result of this study regarding time of start of improvement of patient' BCVA in both groups; In control group; 16 cases (80%) show no improvement, 3 cases (15%) started to improve after one week while one case (5%) was improved after 2 weeks of start of conservative treatment while in injected group 2 cases (10%) show ocular complications, 3 cases (15%) started their improvement after one week while 15 cases (75%) started their improvement after 2 weeks of intravitreal bevacizumab injection.

To summarize the result of this study regarding the amount of improved BCVA visual acuity lines above baseline BCVA in both groups; in control group 16 cases (80%) of control group show no improvement and 4 cases (20%) show improvement of their BCVA above baseline measurements. From these 4 cases; 1 case (25%) was improved by7 lines, 2 cases (50%) were improved by 8 lines, and one case (25%) was improved by 9 lines at the end of conservative treatment period. While in injected group; 2 cases(10%) were not improved secondary to development of ocular complications and the remaining 18 cases (90%) show improvement of their BCVA above baseline measurements. From these 18 cases; one case(5.5%) was improved by 1 line, one case(5.5%) was improved by 4 lines, 2 cases

(11.1%) were improved by 5 lines, 2 cases (11.1%) were improved by 6 lines, 4 cases (22.2%) were improved by 7 lines, 5 cases (27.8%) were improved by 8 lines, one case (5.5%) was improved by 10 lines, one case (5.5%) was improved by 11 lines and one case (5.5%) was improved by 12 lines above baseline BCVA after 3 months from time of injection of intravitreal bevacizumab.

Throughout the course of the study, the injected group shows 2 cases which developed ocular complications. 1 case develops post injection endophthalmitis which was treated by PPV after failure of intravitreal antibiotics injection. The other case developed post injection tractional retinal detachment TRD which also was treated by PPV.

From above mentioned results, this study is recommending changing the traditional management protocol of diabetic vitreous haemorrhage. When encountering such a case, obtain a brief history, do full ophthalmic examination, evaluate posterior segment by B- scan and if tractional elements were suspected shift to PPV, inject 1.25mg/0.05ml IVB in the usual sterile fashion after an informed consent, follow up patient at close regular intervals by indirect ophthalmoscope and B-scan. If no improvement after 1 month; consider re injection under the same guidelines. If at any time TRD developed, shift to PPV. When media is sufficiently cleared to obtain retinal details; do PRP.

Despite the many shortcomings of this study, including its limited follow-up, small number of patients, nonstandardized visions, nonstandardized baseline measurements like age, type of DM, duration of VH before presentation, previous attacks and managements; the cases presented clearly

demonstrate the capability of bevacizumab to cause at least short-term absorption of vitreous haemorrhage. Long-term results are not known, and therefore, caution should be exercised until the numerous outstanding questions with regard to safety, dosing, efficacy, and duration of effect can be answered by prospective clinical trials. Further study to evaluate the role of intravitreal bevacizumab in the treatment of PDR is welcomed.

Intravitreal bevacizumab showed positive biological effect in treatment of PDR complicated by vitreous haemorrhage with no safety concerns at least for the short term but long term safety and efficacy could not be predicted according to the results of this study being unmasked with relatively short term follow up. Further research is warranted based on the accumulating reports supporting similar findings. Intravitreal bevacizumab was effective in treatment of proliferative diabetic retinopathy complicated by vitreous haemorrhage. It can induce effective regression of retinal neovascularization and rapid clearance of vitreous hemorrhage. It can be used as an adjunctive therapy with laser photocoagulation and to enhance absorption of vitreous hemorrhage with subsequent deferral from vitrectomy.