Diabetic Retinopathy Vitrectomy Study (DRVS) – 1990

THE LENS

Objective

To compare early vitrectomy (1-6 months) to traditional management (late vitrectomy, ≥12 months, or immediate vitrectomy, if a retinal detachment occurred involving the macula) for severe vitreous hemorrhage secondary to proliferative diabetic retinopathy (PDR).

Methods

Design: One natural history study (group N), two RTCs (groups NR and H)

Three distinct studies:

- **Group N:** Severe PDR without significant hemorrhage followed with traditional management
  - 744 eyes enrolled
- **Group NR:** Severe PDR without significant vision loss (VA > 20/400) randomized to early and traditional (delayed) vitrectomy
  - 370 eyes enrolled
- **Group H**: Severe PDR with significant visual loss (VA < 20/800, but not NLP) from severe vitreous hemorrhage randomized to early and traditional (delayed) vitrectomy
  - 616 eyes enrolled

Main outcome: Visual acuity

Results

Point 1: Overall, patients in the early vitrectomy cohort had better visual outcomes than those in the delayed vitrectomy cohort

Point 2: Patients with type 1 diabetes and severe vision loss from VH, monocular patients (regardless of diabetes type), and patients with advanced PDR had better visual outcomes when vitrectomy was performed early

Point 3: Patients who received panretinal photocoagulation had better visual outcomes

Point 4: No significant difference was seen with early versus delayed vitrectomy for patients with type 2 diabetes

Point 5: Regardless of intervention, NLP developed in 20% of eyes after vitreous hemorrhage

TLDR: Early vitrectomy within three months of severe vitreous hemorrhage improves visual prognosis in Type 1 Diabetics

1. Two-year course of visual acuity in severe proliferative diabetic retinopathy with conventional management. Diabetic Retinopathy Vitrectomy Study (DRVS) report #1. Ophthalmology. 1985 Apr;92(4):492-502. doi: 10.1016/s0161-6420(85)34002-2. PMID: 4000644.
2. Early vitrectomy for severe vitreous hemorrhage in diabetic retinopathy. Two-year results of a randomized trial. Diabetic Retinopathy Vitrectomy Study report 2. The Diabetic Retinopathy Vitrectomy Study Research Group. Arch Ophthalmol. 1985 Nov;103(11):1644-52. PMID: 2865943.
3. Early vitrectomy for severe proliferative diabetic retinopathy in eyes with useful vision. Results of a randomized trial--Diabetic Retinopathy Vitrectomy Study Report 3. The Diabetic Retinopathy Vitrectomy Study Research Group. Ophthalmology. 1988 Oct;95(10):1307-20. doi: 10.1016/s0161-6420(88)33015-0. PMID: 2465517.
4. Early vitrectomy for severe proliferative diabetic retinopathy in eyes with useful vision. Clinical application of results of a randomized trial--Diabetic Retinopathy Vitrectomy Study Report 4. The Diabetic Retinopathy Vitrectomy Study Research Group. Ophthalmology. 1988 Oct;95(10):1321-34. doi: 10.1016/s0161-6420(88)33014-9. PMID: 2465518.
5. Early vitrectomy for severe vitreous hemorrhage in diabetic retinopathy. Four-year results of a randomized trial: Diabetic Retinopathy Vitrectomy Study Report 5. Arch Ophthalmol. 1990 Jul;108(7):958-64. doi: 10.1001/archopht.1990.01070090060040. Erratum in: Arch Ophthalmol 1990 Oct;108(10):1452. PMID: 2196036.