Clinical Stages of Diabetic Retinopathy & Macular Edema
Diabetic Retinopathy

- MOST prevalent diabetic microvascular complication
- Main vision threat
  - Diabetics 25X more likely to go blind than non-diabetics
- Strong predictor of renal disease
Stages of DR Defined

- American Optometric Association by requesting item SDC1, General Guidelines for the Management of Diabetic Retinopathy Chart
Stages: As Defined

• Nonproliferative Stages
  Normal, Mild, Moderate, Severe, Very Severe

• Proliferative
  – Neovascularization
    Stages
      Non-high Risk, High Risk
No DR

- Follow Up q12 months
- No FA, photos or laser treatment needed
- Education on need for Tight Glycemic Control

5-10% will develop retinopathy within 1 year
Mild NPDR

• One visible Ma to H/Ma less than standard photo 2A
• Follow-up Q12 months
• No photos (unless suspect location), laser or FA

16% of type 1 diabetics progress to proliferative disease within 4 years
Mild NPDR
Moderate NPDR

- H/Ma greater than SP 2A and/or CWS, venous beading or IRMA to a mild degree
- Follow up q6-12 months
- No laser or FA
- Photos are an option

Underestimating the level of retinopathy will grossly underestimate the risk of progression to proliferative retinopathy
Severe NPDR

- Any one of the following (4-2-1 rule):
  - Hemorrhages in 4 quadrants (SP 2a)
  - Venous beading in 2 quadrants (SP 6B)
  - IRMA in 1 quadrant (SP 8A)
- Follow-up q 2-3 months
- Uncertain of usefulness of laser treatment at this stage
- Photos and FA used if needed
Severe NPDR

Venous beading in 2 quadrants (SP 6B)

IRMA in 1 quadrant (SP 8A)
Very Severe NPDR

• Two or more conditions from the severe classification

• Follow-up
  – 2-4 wks with a retinal consult
  – Q2-3 months re-examination with dilated fundus exam
Very Severe NPDR

- Very high risk for progression to proliferative disease
- Usefulness of PRP is uncertain at this stage
- Although may be beneficial for some patients, particularly type 2 DM
- Risk of developing PDR within 1 year is 75%
  - 45% will be high-risk PDR
Non High-Risk Proliferative Diabetic Retinopathy

- NVD or NVE which does NOT meet the definition for high-risk
- Follow up 2-4 weeks with retinal consult
- Uncertain of laser and FA usefulness
- Photos are an option
Non-high risk PDR
High-Risk PDR

- NVD greater than 1/3 disc area (SP 10A)
- NVD with fresh bleeding
- NVE with bleeding
- Retinal consult 24-48 hrs
- Laser needed
- Photos and FA may be options
High Risk PDR
High-risk PDR
Diabetic Macular Edema

• Thickening of the retina at or within 1 DD of center of macula –or-
• Hard exudates within 1 DD of center of macula with associated retinal thickening –or-
• Signs less than definition of clinically significant macular edema (CSME)
  – Clinically significant macular edema defined by ETDRS
Clinically Significant Macular Edema

• Leading cause of legal blindness in type 2 diabetic population
• Visual acuity is not part of the definition of CSME. A patient can be 20/15 and still have CSME.
• CSME can occur at any stage of diabetic retinopathy independent of any other findings.
• You must know these definitions!
Clinically Significant Macular Edema

• Early Treatment Diabetic Retinopathy Study (ETDRS)

• Defined as the presence of one or more of the following,
  – Retinal edema within 500 microns (1/3DD) of the center of the macula.
  – Hard exudates within 500 microns (1/3DD) of fovea if associated with adjacent retinal thickening
  – Retinal edema that is one disc diameter or larger, any part of which is within one disc diameter of the center of the fovea
Diabetic Retinopathy
Clinically Significant Macular Edema

- Retinal Thickening at or within 500 microns of the center of the macula
Diabetic Retinopathy
Clinically Significant Macular Edema

- Hard exudates within 500 microns of the macula plus adjacent areas of retinal thickening
Diabetic Retinopathy
Clinically Significant Macular Edema

• A zone or zones of retinal thickening 1 DD (1500 microns) in size any portion of which lies within 1 DD of the center of the macula
Clinically Significant Macular Edema

1 week retinal consult
FA useful in treatment process