DIABETIC MACULAR EDEMA

Eye Learn

All about the Eye

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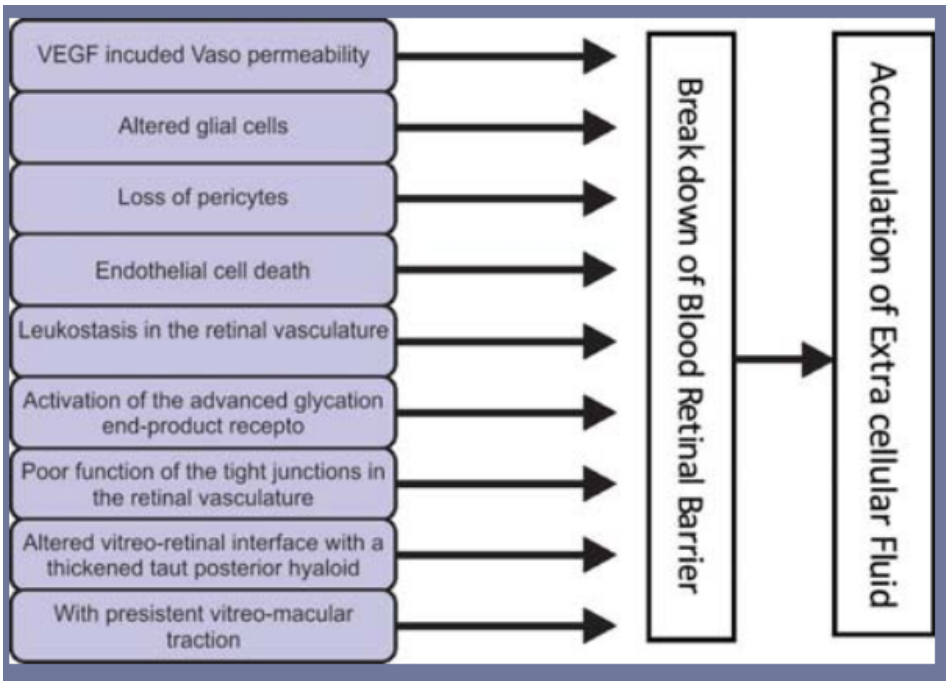
DIABETIC MACULAR EDEMA

Diabetic Macular Edema Disease Severity scale (DRS Report 7)

Proposed Disease Severity Level	Findings observable upon dilated ophthalmoscopy DME
DME apparently absent	DME apparently absent No apparent retinal thickening or hard exudates in posterior pole
DME apparently present	Some apparent retinal thickening or hard exudates in posterior pole
DME present	Mild DME (some retinal thickening or hard exudates in posterior pole but distant from the center of the macula) Moderate DME (retinal thickening or hard exudates approaching the center of the macula but not involving the center) Severe DME (retinal thickening or hard exudates involving the center of the macula)

Pathogenesis



Focal vs. grid photocoagulation	
Focal	Grid
500-3000 micrometer area away from foveal center	Areas of diffuse leakage
50-100 micrometer spot size individual MA	50-200 spot size
0.1 seconds	0.1 seconds
Burnt to whitening	Light intensity burns

Non – resolving DME

Diagnosis and management of non-resolving diabetic macular oedema. 5+5 D2017

Clinically Significant Macular Edema (CSME) Treatment
First-line therapy • Focal or modified ETDRS grid photocoagulation for focal or diffuse CSME • Intravitreal pharmacotherapies ± photocoagulation for more advanced, diffuse CSME
For persistent or recurrent CSME (visual acuity <20/40) • Repeat photocoagulation • Intravitreal triamcinolone acetonide or intravitreal antivascular endothelial growth factor (VEGF) agent
For CSME refractory to photocoagulation and intravitreal pharmacotherapies, consider pars plana vitrectomy (PPV) • No traction: PPV with internal limiting membrane (ILM) peeling • Taut posterior hyaloid face or vitreomacular traction syndrome: PPV

What is the role of newer Lasers in management of diabetic macular edema? (3) D2014

SRT

1. One method to provide retinal phototherapy without severe permanent damage is selective treatment of the retinal pigment epithelium (RPE) by decreasing the laser pulse duration, termed selective retinal therapy (SRT)
2. It has been demonstrated that microsecond (μs) pulse durations can selectively destroy RPE without damaging the retina.
3. Due to heat confinement, microsecond and nanosecond laser pulses can produce explosive vaporization of melanosomes, resulting in selective damage to the RPE layer, sparing photoreceptors and the inner retina. Subsequent RPE proliferation and migration restores RPE continuity.

PASCAL

1. The PASCAL (Patterned scanning Laser) Photocoagulator is an integrated semi-automatic pattern scan laser photocoagulation system designed to treat ocular diseases using a single shot or predetermined pattern array
2. The shorter pulse durations require less total energy to produce burns, there is less spreading, less choroidal heating and uniform energy distribution.
3. The burns are smaller and homogeneous, with less inner retinal injury, and potentially, less field loss and better clinical outcomes.

PASCAL has numerous advantages:
Performance
Enhanced Patient Comfort: A substantially more comfortable therapeutic experience, potentially leading to improved patient compliance.
Advanced Precision: Macular Grid treatment provides an improved margin of safety and dosimetry control when compared with single shot treatments.
Unlike the irregular pattern placement obtained in single shot photocoagulation, PASCAL delivers more even pattern burns.
Ease of use: Accelerated learning curve.
Reproducibility: Predictable burn size with consistent patterns leading to more precise treatment comparisons and adherence to specific treatment protocols.