njretina®
An affiliate of PRISM Vision Group
April // 2023 // njretina.com

Physicians

Nneka O. Brooks, MD
Nicholas D. Chinskey, MD
Rishabh C. Date, MD
Lekha K. Desai, MD
Leonard Feiner, MD, PhD
Howard F. Fine, MD, MHSc
Eric S. Friedman, MD
Luis A. Gonzalez, MD, MPH
Jonathan P. Greenberg, MD
Paul Hahn, MD, PhD
Vincent Y. Ho, MD
Bruce J. Keyser, MD
David Y. Kim, MD
Anton Kolomeyer, MD, PhD
Jennifer M. Krawitz, MD
Marisa K. Lau, MD
Tamara Lee Lenis, MD, PhD
Steven A. Madreperla, MD, PhD
Akosua Nti, MD
Alexander D. Port, MD
Jonathan L. Prenner, MD
Daniel B. Roth, MD
Christopher M. Seery, MD
Sumit P. Shah, MD
Harris C. Sultan, MD, MS
Elizabeth O. Tegins, MD
Vinod B. Voleti, MD
Marlene Wang, MD
H. Matthew Wheatley, MD

Locations

North Jersey

Belleville
973-450-5100

Clifton
973-472-4114

Elizabeth
908-409-4900

Morristown
973-630-7700

Ridgewood
201-445-6622

Teaneck
201-837-7300

Union City
201-867-2999

Vauxhall
908-349-8155

Wayne
973-633-9898

Central Jersey

Bridgewater
908-218-4303

Eatontown
732-389-2333

Edison
732-906-1887

Lakewood
732-363-2396

Lawrenceville
609-896-3655

Monroe
609-655-8301

New Brunswick
732-220-1600

Toms River
732-797-3883

Lipemia Retinalis

Lipemia Retinalis is a rare condition that affects the retinal arteries and veins due to high triglyceride levels. These patients typically have no visual symptoms but are at increased ophthalmic risk for retinal artery or vein occlusions and retinal ischemia. On fundus exam the retinal vessels appear milky white in color and in severe cases can look salmon colored.[1] (Figure 1) When this is identified it is important to evaluate for underlying metabolic disorders resulting in lipid abnormalities to prevent these irreversible and potentially catastrophic systemic complications.

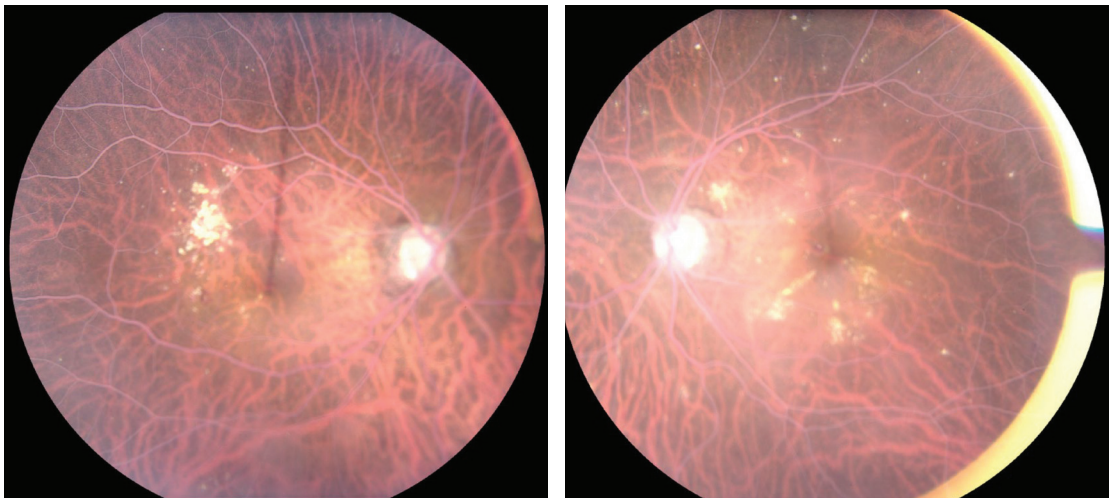


Figure 1: Fundus photo of right and left eye demonstrating salmon colored appearance of retinal arteries and veins.

Lipemia Retinalis was first described in late 19th century and then was further classified into 3 stages nearly 100 years later. [1,2] It has been described in patients of all ages including premature infants and elderly adults. [1,3] Most of the triglycerides consumed in our diet are carried from the intestines to the systemic circulation through large lipid transport molecules called chylomicrons. The high level of triglycerides in chylomicrons produces lipemia retinalis due to the light scattering effect of chylomicrons in the blood vessels. If a sample of blood was taken from someone with hypertriglyceridemia and allowed to sit, you would see a thick level of whitish cloudy material layer above the blood (Figure 3). Hypertriglyceridemia can be familial or secondary to other metabolic diseases. Multiple genes have been identified in hypertriglyceridemia. Familial disorders include LPL deficiency, ApoC-II deficiency, and endogenous circulating LPL inhibitor.

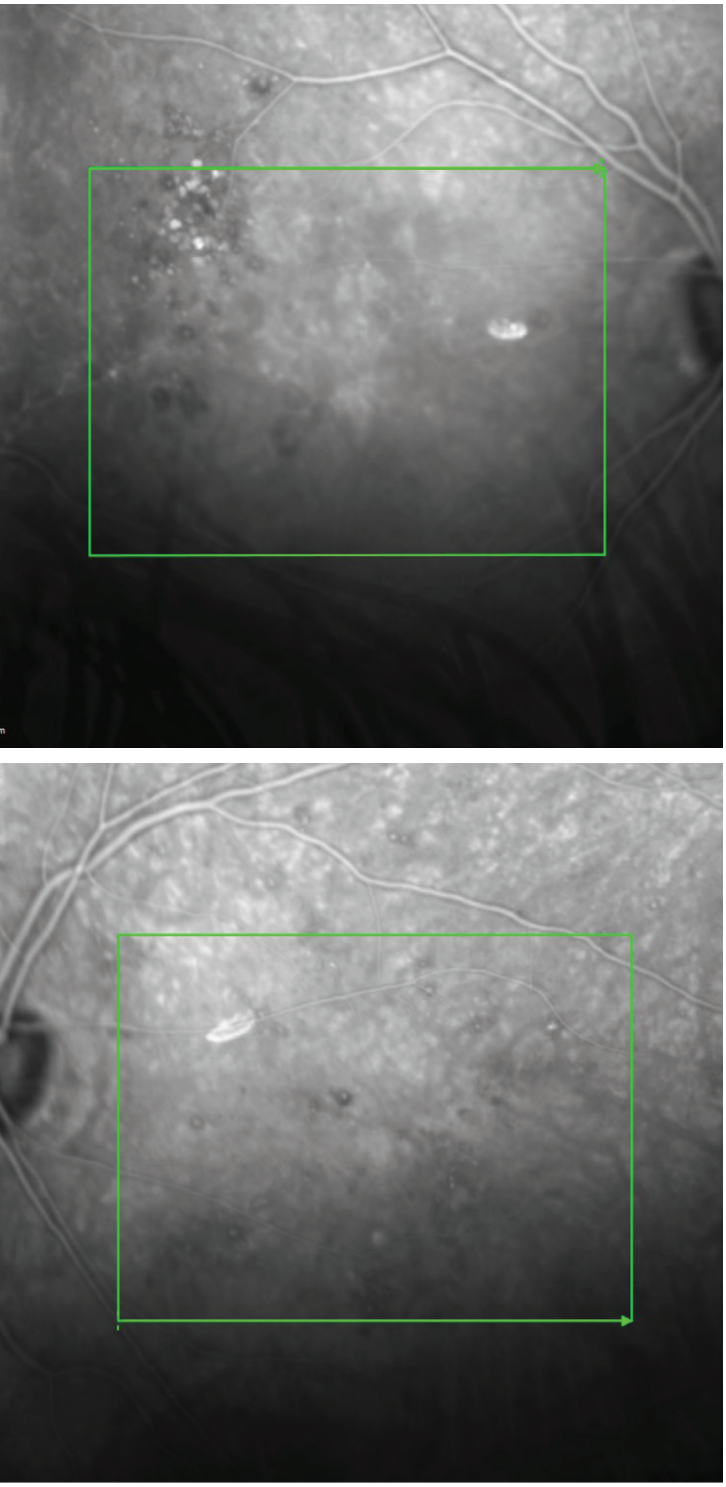


Figure 2: Near-infrared imaging from optical coherence tomography of right and left eye shows hyperreflective arteries and veins in same patient.

Secondary causes include uncontrolled diabetes, obesity, medications, endocrine disorders, dietary intake, pregnancy, liver or renal disease. Systemic diseases associated include acute spinal cord injury, anorexia nervosa, human immunodeficiency virus infection, systemic lupus erythematosus, myeloma, organ transplant, and sarcoidosis. [4]

According to the National Health and Nutrition Examination Survey from 2001-2006, about 1.7% of the total US population were reported to have significantly elevated triglyceride levels (500-2000 mg/dL). These patients were more likely to be males (75.3%), aged 40-59 (58.5%) and non-Hispanic whites (70.1%). Hypertension was associated in 31.3% of cases and diabetes in 14% of cases. Patients are usually asymptomatic unless it is associated with vascular ischemia or occlusion.[5]

Diagnosis is clinical based on fundus exam and coexistent hypertriglyceridemia. There are 3 stages as follows.[1,6]

Grade I -
peripheral vessels look creamy and thin (2500 to 3499 mg/dL)

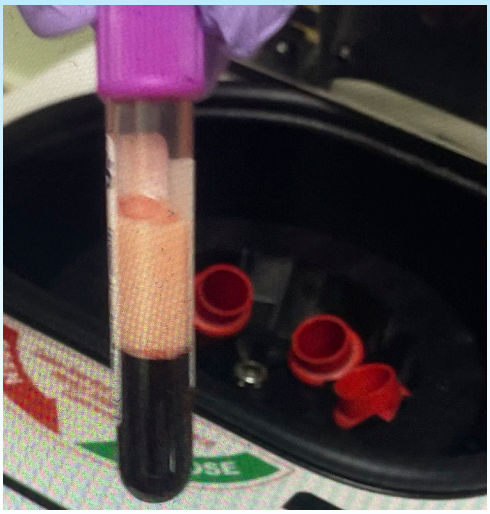
Grade 2-
posterior pole vessels have a creamy color (3500 to 5000 mg/dL)

Grade 3-
the fundus has salmon-color. (levels > 5000 mg/dL)

Diagnostic testing using optical coherence tomography can be helpful in demonstrating engorged and hyperreflective retinal vessels (Figure 2) and white dots in the ganglion and inner nuclear cell layer. These findings normalize after improvement in serum triglyceride levels.

The differential diagnosis includes retinal artery or vein occlusion, hypertensive retinopathy, diabetic retinopathy, vasculitis, intravascular calcification of retinal vessels, leukemia, and diffuse choroidal hemangiomas.[7,8] A good periorbital and anterior segment exam can lead to the diagnosis as you may find xanthelasma, palpebral, conjunctival, and iris xanthomas, or even lipids floating in the anterior chamber. In leukemia, the veins are reddish pale, while the arteries are pale yellow. Vasculitis is usually segmental and associated with perivascular infiltrates and evidence of intraocular inflammation.[7]

No treatment is needed from an ocular standpoint. A referral to a primary care physician for a complete history and physical as well as blood work is crucial to evaluate for any underlying cardiovascular risk factors. Reducing triglyceride levels below 500 mg/dL can be done with dietary measures, medications and with exchange transfusions in severe cases.[9]



Lipemia retinalis is reversible from retinal perspective unless patients develop occlusions and ischemia. These can lead to neovascularization and vitreous hemorrhage. Furthermore, patients are at increased systemic risk for metabolic syndrome complications including carotid artery disease, myocardial infarction, stroke, and acute pancreatitis.

Lipemia retinalis is a rare retinal condition which can be diagnosed on clinical examination. It is imperative that physicians coordinate care with primary care specialists to look for underlying metabolic conditions that can be life threatening.

Figure 3: Blood sample from same patient shows thick white layer from triglyceride levels of 16,000 mg/dL.

References:

1. Vinger PF, Sachs BA. Ocular manifestations of hyperlipoproteinemia. Am J Ophthalmol. 1970 Oct;70(4):563-73
2. Heyl AG. Intra-Ocular Lipæmia. Trans Am Ophthalmol Soc. 1880;3:54-66.
3. Jain A, Mochi TB, Braganza SD, Agrawal S, Shetty BK, Pachiyappan B. Lipemia retinalis in an infant treated for retinopathy of prematurity. J AAPOS. 2017 Jun;21(3):254-257
4. Leaf DA. Chylomicronemia and the chylomicronemia syndrome: a practical approach to management. Am J Med. 2008 Jan;121 (1):10-2.
5. Christian JB, Bourgeois N, Snipes R, Lowe KA. Prevalence of severe (500 to 2,000 mg/dl) hypertriglyceridemia in United States adults. Am J Cardiol. 2011 Mar 15;107(6):891-7.
6. Zahavi A, Snir M, Kella YR. Lipemia retinalis: case report and review of the literature. J AAPOS. 2013 Feb;17(1):110-1
7. Mishra C, Tripathy K. Lipemia Retinalis. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Aug 22, 2022.
8. Patel DV, Snead MP, Satchi K. Retinal arteriolar calcification in a patient with chronic renal failure. Br J Ophthalmol. 2002 Sep;86(9):1063.
9. Capitena CE, Wagoner HJ, Ruzas CM, Bennett TD, Baker PR, Jung JL, Weisfeld-Adams JD. Rapid resolution of infantile lipemia retinalis following exchange transfusion. J Inherit Metab Dis. 2016 Nov;39(6):889-890

NJRetina – First to Deliver New Groundbreaking FDA-Approved Medication SYFOVRE™

Geographic Atrophy (GA) has been one of the leading causes of blindness for which there was no treatment. That all changed on March 1 when NJRetina's Dr. Howard F. Fine became the first in New Jersey and among the nation to deliver the first dose of SYFOVRE™ (pegecetacoplan injection). "NJR and I were involved in the clinical trials, which showed significant reductions in disease progression and will be a game-changer for our patients," stated Dr. Howard F. Fine. We can think of few things more fulfilling than giving someone the gift of continued vision.

Since 2019, our clinical study team and physicians have participated in early-stage clinical trials that allowed this drug to gain early access to patients in need and ultimately achieve approval from the FDA.

Steven Madreperla, M.D., Ph.D., NJRetina physician and CEO of PRISM Vision Group, added: "This is truly a great day. As a retina surgeon, I am thrilled that treatment is now available for the many patients we take care of with geographic atrophy. As the President and CEO of PRISM Vision Group, I am incredibly proud of our clinicians to be the first in the nation to utilize this treatment, as well as all those on our team that led and participated in the clinical trials that led to SYFOVRE™'s FDA approval. Our doctor's dedication to the progression of the science of medicine through our robust clinical trials program is one of the many things that sets NJRetina apart."

All of our physicians NJRetina physicians are available for consultations and would be happy to discuss how we may be able to assist your previously untreatable patients with GA by contacting **855-NJRETINA.**

At the forefront of clinical research

NJRetina continuously conducts clinical trials at key locations. Our clinical research coordinators will be happy to discuss the inclusion/ exclusion criteria or any other aspect of these studies with you or your patients. If you have any questions, please feel free to contact:

Lauryn Onkendi - Teaneck: 201-837-7300, lonkendi@njretina.com
Kerowyn Smith - Teaneck: 201-837-7300, ksmith@njretina.com
Dina Christodoro - Toms River: 732-797-3984 and Edison: 732-906-1887, dchristodoro@njretina.com
Andy Merino - Toms River: 732-797-3984 and Edison: 732-906-1887, amerino@njretina.com
Joseph Portelli - Teaneck: 201-837-7300, jportelli@njretina.com
Nelly Velasco, MS - Teaneck: 201-837-7300 ext. 2022, nvelasco@njretina.com

Enrolling Studies:

Wet AMD
Edison
Opthea Coast: A Phase 3, Multicenter, Double-masked, Randomized Study to Evaluate the Efficacy and Safety of Intravitreal OPT-302 in Combination with Aflibercept, Compared with Aflibercept Alone, in Participants with Neovascular Age-related Macular Degeneration (nAMD)

Toms River
Opthea ShORe: A Phase 3, Multicenter, Double-masked, Randomized Study to Evaluate the Efficacy and Safety of Intravitreal OPT-302 in Combination with Ranibizumab, Compared with Ranibizumab Alone, in Participants with Neovascular Age-related Macular Degeneration (nAMD)

Teaneck
Elevatum: A Phase IIIB/IV, Multicenter, Open-Label, Single-Arm Study to investigate Faricimab treatment in response to treatment-naïve, underrepresented patients with Diabetic Macular Edema

Teaneck
Luna: A Multi-Center, Randomized, Double-Masked Phase 2 Study to Assess Safety and Efficacy of ADVM-022 (AAV.7m8-aflibercept) in Anti-VEGF Treatment Experienced Patients with Neovascular (Wet) Age[1]related Macular Degeneration

Teaneck
DAVIO: A Phase 2, Multicenter, Prospective, Randomized, Double-Masked, Parallel Study of EYP-1901, a Tyrosine Kinase Inhibitor (TKI), Compared to Aflibercept in Subjects with Wet AMD

Diabetic Retinopathy
Teaneck
Ocuterra: A Phase 2 Randomized, Double-Masked, Vehicle[1] Controlled, Multicenter Study to Evaluate the Safety and Efficacy of OTT166 Ophthalmic Solution in the Treatment of Diabetic Retinopathy (DR)

Teaneck
PAVIO: A Phase 2, Multicenter, Prospective, Double-masked, Parallel Study of EYP-1901, a Tyrosine Kinase Inhibitor (TKI), compared to Sham for the Improvement of Moderately Severe to Severe Nonproliferative Diabetic Retinopathy (NPDR)

Upcoming Studies:

GA / Dry AMD
Teaneck
Alexion: A Phase 2, Double-Masked, Placebo-Controlled, Dose Range Finding Study of Danicopan (ALXN2040) in Patients with Geographic Atrophy (GA) Secondary to Age-Related Macular Degeneration (AMD)

Janssen: Phase 2/3, Randomized, Double-masked, Multicenter, Dose-ranging, Sham[1]Controlled Clinical Trial to Evaluate Intravitreal JNJ-81201887 (AAVCAGsCD59) Compared to Sham Procedure for the Treatment of Geographic Atrophy (GA) Secondary to Age-related Macular Degeneration

RVO
Teaneck, Toms River, Edison
Bayer Study: A Randomized, Double-Masked, Active-Controlled, Phase 3 Study of the Efficacy and Safety of Aflibercept 8 mg With Macula Edema due to Retinal Vein Occlusion

To read past issues of our newsletter, visit njretina.com.