

ESTABLISHING THE PEDIATRIC RETINA SOCIETY



Top lectures at the 2021 Advances in Pediatric Retina Course included the long-anticipated creation of a pediatric retina organization.

BY SHWETHA MANGALES, MBBS, AND NITA VALIKODATH, MD, MS

The third Advances in Pediatric Retina (APR) Course was packed with lectures and panels focused on cutting-edge diagnostic tools, management techniques, and research for pediatric retinal diseases.

This year's virtual platform allowed participants from all over the world to connect and exchange expertise on various treatment strategies and surgical approaches. It also gave the program chairs—Cynthia Toth, MD; Lejla Vajzovic, MD; and Mary Elizabeth Hartnett, MD—the global platform they needed to establish a very special and much-needed organization: the Pediatric Retina Society.

Below is a summary of several key lectures, and the first look at the benefits the new society will afford its members.

ROP CLASSIFICATION

One of the highlights of the meeting was a panel discussion on the updated Classification for Retinopathy of Prematurity (ICROP3). The panelists included experts involved in the update itself: Dr. Hartnett; Michael F. Chiang, MD; Anna Ells, MD; David Wallace, MD, MPH; and Antonio Capone, MD. Dr. Chiang, who spearheaded the committee of 34 experts, addressed the need for an updated classification and elaborated on the key changes, including the addition of ophthalmic imaging and anti-VEGF therapy.

Dr. Hartnett discussed the committee's addition of regression and reactivation, which she noted differs in clinical presentation

and time course for patients treated with anti-VEGF agents compared with those treated with laser photocoagulation.

The panel reiterated the importance of standardizing ROP terminology to provide consistent research endpoints. Hopefully, ICROP3 will be a useful framework for defining these endpoints, the panelists agreed.

A Pediatric Retina Society would also provide a more formal interdisciplinary collaboration between retinal specialists and pediatric ophthalmologists, beyond the ROP collaborations that now exist.

- Gil Binenbaum, MD, MSCE, Chief of the Division of Ophthalmology, Children's Hospital of Philadelphia

Thanks everyone for an excellent meeting. I really enjoyed it and, as an adult vitreoretinal surgeon, I learned so much.

- Anwar Zaman, Consultant Vitreoretinal Surgeon, Nottingham University Hospitals, UK

KEYNOTE: CHALLENGES IN TREATMENT

This year's keynote speaker was Hiroko Terasaki, MD, a world-renowned physician-scientist with expertise in adult and pediatric retinal diseases. Dr. Terasaki addressed the challenges in the treatment of severe ROP, first noting that the eyes are small, the retinal detachments are complex at the time of surgery, and the success rate of a second surgery is low. However, if you understand the process of progression (from stage 4a to stage 5, for example), you can "untie the entwined thread," she quipped.

She punctuated her talk with incredible videos of complicated ROP surgeries, including open-sky vitrectomy and lensectomy in eyes with stage 5 ROP. In patients with stage 5 ROP, surgeons must focus on opening the funnel and then opening the trough, she advised, narrating several surgical videos to drive home the point.

Dr. Terasaki touched on the benefits of having access to anti-VEGF agents, which allows surgeons to

operate on severe ROP sooner, she said. Research shows that the amount of VEGF in the aqueous humor increases as the stage

of ROP increases, and a preoperative injection of bevacizumab (Avastin, Genentech) significantly reduces the amount of VEGF, aiding in the surgery. And never forget about buckling, she added, showing the audience several cases in which a scleral buckle saved the patient's retina.

During the panel discussion that followed, Dr. Terasaki reminded the audience that managing ROP is no easy task, and it's a long-term treatment process.

At the end of the session, Dr. Terasaki was honored by the course directors for her many contributions and mentoring to the pediatric retina community.

PEDIATRIC RESEARCH

The session on cutting-edge research in pediatric retina covered anti-VEGF treatment of ROP, hypoxia-inducible factor stabilization to prevent ROP and proliferative vitreoretinopathy, and regenerative medicine for familial exudative vitreoretinopathy. In addition, discussions of recent studies were interspersed throughout the entire event. Eric Nudleman, MD, PhD, delivered an exciting talk on intravitreal V1233, a novel anti-VEGF agent that may prove safe in ROP.

Anand Vinekar, MD, discussed the possible creation of biomarker kits for ROP using tear film angiogenic factors. He and his team looked at 36 preterm infants and found that infants with ROP had lower levels of VEGF and higher levels of angiogenin than infants without ROP. In addition, the angiogenin levels negatively correlated with both birth weight and gestational age in infants with ROP. Further analysis showed that angiogenin/birth weight, angiogenin/gestational age, and angiogenin/VEGF ratios were useful for differentiating study participants with and without ROP—leading Dr. Vinekar to suggest that these ratios could serve as potential screening biomarkers for ROP.¹

GENE THERAPY

Gene therapy for pediatric inherited retinal diseases is a hot topic, and the meeting coverage did not disappoint. Robert Sisk, MD, offered practical considerations and pearls for surgical techniques of delivering subretinal gene therapy, including how to select an ideal target area and bleb formation. Aaron Nagiel, MD, PhD, addressed the postoperative complication of progressive perifoveal chorioretinal atrophy and its relationship to the bleb and/or vector. Cagri Besirli, MD, PhD, discussed

outcomes of voretigene neparvovec-rzyl (Luxturna, Spark Therapeutics) subretinal gene therapy for pediatric patients with the biallelic RPE65 mutation. The panel that followed, which also included Antonio Capone Jr, MD, shared strategies for managing various other postoperative complications such as inflammation and elevated IOP.

CALL FOR A PEDIATRIC RETINA SOCIETY

The seed for the formation a pediatric retina society was planted at the first APR meeting in 2017. This year, Drs. Toth, Vajzovic, and Hartnett reiterated the need for this society, sharing several of the benefits such a society would provide the wider retina community:

- A platform for sharing rare and challenging cases to facilitate discussions about clinical approaches and management.
 - The creation of a repository of specialists for patient referral.
 - A space for early-career pediatric retina surgeons to find global mentoring, especially when navigating the logistical problems of a surgical setup.
- Course participants wholeheartedly supported the society's creation by using the chat function; many were already thinking of additional ways the society could help the retina community. For example, Dominico Lepore, MD, mentioned that it would be an ideal way to organize a big data collection system for future research studies. Thus marked the establishment of the Pediatric Retina Society.

We are excited to see what the future holds for the pediatric retina community and are looking forward to participating in these ongoing efforts. ■

1. Vinekar A, Nair AP, Sinha S, et al. Tear fluid angiogenic factors: potential noninvasive biomarkers for retinopathy of prematurity screening in preterm infants. *Invest Ophthalmol Vis Sci.* 2021;62(3):2.

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THANK YOU to all who made this wonderful virtual APR possible! Outstanding talks and videos from all over the world; we have learned a lot these 2 days for the benefit for our patients. I am looking forward for more meetings like this! Congratulations and kind regards from Buenos Aires, Argentina.

- Sofia Vidal, Vitreoretinal Surgeon,
Garrahan Hospital, Buenos Aires, Argentina

YES! You have created this incredible meeting. The start of the Pediatric Retina Society!

- Alice Lyon, MD, Director, Retina Service; Professor of Ophthalmology, Northwestern University, Chicago