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Telemedicine provides accurate diagnosis of rare cause of blindness in preemies

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Accurately detecting a rare, but devastating cause of blindness in premature babies can be done as effectively with telemedicine as with traditional, in-person eye exams, a study published in *JAMA Ophthalmology* suggests. This is believed to be the first study to directly compare the two approaches.

The finding could enable more blindness-preventing treatment for infants born in rural and other areas where there are few ophthalmologists trained to detect the condition, called retinopathy of prematurity, or ROP. Musician Stevie Wonder went blind due to this condition.

"A lack of access to trained ophthalmologists with experience diagnosing ROP sadly prevents many premature infants from receiving much-needed screening, both in developed and developing countries," said the study's lead researcher, Michael F. Chiang, M.D., a professor of ophthalmology and medical informatics & clinical epidemiology in the OHSU School of Medicine and a pediatric ophthalmologist at OHSU's Elks Children's Eye Clinic.

The study's first authors are Hilal Biten, M.D., and Travis Redd, M.D., M.P.H. Redd is an OHSU ophthalmology resident and Biten was a visiting OHSU scholar who now works at Ankara Numun Training and Research Hospital in Turkey.

Retinopathy of prematurity is caused by abnormal blood vessel growth

near the retina, the light-sensitive portion in the back of an eye. The National Eye Institute of the National Institutes of Health reports that while up to 16,000 U.S. babies experience the condition to some degree, only 400 to 600 become legally blind each year as a result.

Some U.S. medical associations recommend an in-person exam, which involves a special magnifying device that shines light into a baby's dilated eye, to diagnose the condition. But trained professionals aren't always easy to find in rural areas and developing countries.

The research team compared the accuracy of in-person exams with digital eye images that were remotely evaluated by professionals. They partnered with seven medical institutions to examine the eyes of 281 infants who were at risk for the condition. Each eye was evaluated both in-person and remotely with a wide-angle telemedicine image.

The researchers found there was no difference in the overall accuracy between the two evaluation methods. In-person examiners were found to be slightly better at accurately diagnosing the condition's later-stage development, but the research team concluded telemedicine could be used to diagnose clinically significant cases of retinopathy of prematurity.

More information: Hilal Biten, Travis K Redd, Chace Moleta, J Peter Campbell, Susan Ostmo, Karyn Jonas, RV Paul Chan, Michael F Chiang, "Diagnostic accuracy of ophthalmoscopy vs telemedicine in examinations for retinopathy of prematurity," *JAMA Ophthalmology*, April 5, 2018, DOI: 10.1001/jamaophthalmol.2018.0649

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