

Title: The Relationship Between the First Retinopathy of Prematurity (ROP) Exam and Development of Type 1 ROP.

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Introduction: The relationship between the first ROP exam and the development of type 1 ROP is uncertain.

Methods: A retrospective cohort study of the records of infants (n= 1,582) screened for ROP (2010 – 2022) was conducted using an ROP registry. Logistic regression using generalized estimating equations was used to estimate odds ratios (OR) and 95% confidence intervals (CI) of developing type 1 ROP following any ROP at initial exam, or for infants who required a one-week follow-up exam following initial exam.

Results: Infants with any ROP noted at initial exam had increased odds of developing type 1 ROP [OR=3.64, 95% CI (1.93, 6.88), $P<0.001$] compared to infants without any ROP noted at initial exam. Infants who required a one-week follow-up exam for any reason after initial ROP exam had even higher odds of developing type 1 ROP [OR=9.31, 95% CI (5.63, 15.4), $P<0.001$] compared to infants who did not require a one-week follow-up exam.

Conclusion: Infants with ROP noted at initial exam and infants requiring a one-week follow-up exam are significantly more likely to develop type 1 ROP.

Significance: When signs of ROP or concern for ROP are noted by the ophthalmologist at the first ROP exam, there is a significant increase in the likelihood of developing type 1 ROP. These data will assist ophthalmologists in predicting type 1 ROP based on initial exam findings.