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PERIPHERAL VASCULAR FINDINGS IN FLUORESCEIN ANGIOGRAPHY AFTER PRIMARY BEVACIZUMAB TREATMENT FOR ROP AND IN SPONTANEOUSLY REGRESSED ROP

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Introduction:

To evaluate angiographic findings in the peripheral retina of two groups of premature infant eyes with peripheral persistent avascular retina (PPAR) after 60 weeks of post menstrual age (PMA): one received bevacizumab as primary treatment for Type 1 ROP, another presented type 2 ROP spontaneous regression. The angiograms were obtained between August 2018 and Decembre 2023.

Materials and methods:

We conducted a retrospective evaluation of fluorescein angiograms from 24 infants (48 eyes) with PPAR performed after 60 weeks post menstrual age (PMA) and a follow-up period up to 13 years. The mean gestational age (MGA) was 25,5 weeks and the mean PMA at the time of bevacizumab treatment was 35 weeks. In 6 eyes with spontaneous regressed ROP the MGA was 24,5 weeks.

Results:

In all angiographies of eyes primarily treated with bevacizumab, we observed an anomalous branching pattern, anomalous capillary bed and vascular shunts. In 6 eyes finger-like brunching pattern was noted, in another 6 eyes blunting and pruning of the vessels was observed and in 2 eyes tangled vessels was identified. Leakage at the vascular-avascular junction was present in 42% of cases. In 12 eyes PPAR remained stable for more than 3 years with no ROP recurrence. In the cases with angiographic vascular activity, we performed prophylactic laser treatment while in others careful follow-up was chosen, leaving laser treatment as an option when follow-up is not feasible.

In all spontaneous regressed ROP eyes, we found finger like anomalous branching pattern with shunts and anomalous capillary bed. In two eyes atrophic holes and lattices were found

Conclusions:

Our study demonstrates that fluorescein angiography performed after intravitreal bevacizumab for Type 1 ROP reveals vascular abnormalities in all eyes with PPAR, a finding also observed in spontaneously regressed ROP. This raises the question of whether these findings are secondary to anti-VEGF exposure or inherent to the disease itself. Despite the increased burden of observation, the absence of recurrent disease or vitreoretinal interface problems in 25% of PPAR cases over a 3-year follow-up may encourage the search for biomarkers to guide prophylactic laser treatment. Further randomized studies are necessary to understand the significance of these vascular findings.

Sources:

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