Persistent avascular retina (PAR)

The ROP usually regresses with (type 1) or without (type 2) treatment, and the retinal vessels are expected to grow and reach ora serrata within several weeks. This process may be halted or delayed in some cases, referred to as PAR. There is no consensus on the exact definition of PAR. Some investigators define PAR as the presence of avascular retina (for example, > 2 DD avascular area in the temporal retina or > 1 DD in the nasal side) persisting for > 60 weeks of GA (or at least six months after

IVI). PAR is usually described by its extent and location. Compared to laser therapy, anti-VEGFs promote PAR (both in frequency and extent), which may be explained by the positive role of VEGFs on normal retinal vascularization.

In a study by Roohipour and colleagues, zone 3 PAR was identified in 82.8% of eyes in the IVB (0.625 mg) group in the first year and 53.4% in the second year after treatment. Chen et al. reviewed the outcomes of 46 ROP patients (92 eyes) treated with IVB and assessed with FA. Only three eyes

(3.3%) achieved full vascular maturity; 39 eyes (43.8%) had PAR, and 34 (38.2%) had PAR plus persistent tortuosity. In another study by Arámbulo et al., of 85 eyes treated with IVR, twelve eyes (29.2%) showed complete vascularization in both eyes, while six infants (11.6%) had avascular retina in zone 2, persisting > 6 months after IVR injection.

There is also no consensus on the management of PAR. Some investigators recommend laser ablation of the avascular retina in eyes with PAR involving zone 2

while observing those in zone 3. Others suggest concomitant findings as being important in the treatment decision process. For example, eyes with peripheral vascular tortuosity, abnormal branching, circumferential vessels in the border of the vascular and avascular area, or peripheral vascular leakage on FA may benefit from treatment , while those with taper-ending straight vessels may be observed. It is important to note that PAR might be the cause of reactivation of ROP several years after birth with tractional or exudative retinal

detachments. The avascular retina may also be prone to develop holes and subsequently rhegmatogenous retinal detachment.