Commentary: Acute central serous chorioretinopathy – Treat early, observe longer

The understanding of central serous chorioretinopathy (CSCR) in terms of its pathophysiology and treatment has been evolving slowly over the past few decades. Due to its self-limiting course with good visual prognosis, historically the clinical observation for 3 months before any intervention, especially for the first episode, has been the gold standard of care.[1] But the patients suffer from blurred vision and metamorphopsia till the resolution of fluid, which is mostly till the third month from the onset. With the recent changes in the workplace demands for the younger population who are prone to this disease, the suboptimal visual acuity during the observation phase of treatment is a hindrance to their professional performance. Chronic CSCR reduces the quality of life significantly for the patients.[2] The need for an early intervention aiming for rapid resolution of the fluid is now warranted, and hence many approaches are being evaluated.

In the current issue of the *Indian Journal of Ophthalmology*, an article evaluated the use of subthreshold green laser for treating CSCR and analyzed the improvement using multiple parameters including multifocal electroretinogram.[3] The prospective trial evaluated the use of subthreshold laser (STL) in acute CSCR, which was previously limited to treating chronic or recurrent episodes. It employed both objective and subjective parameters for analysis. STL aims to target the retinal pigment epithelium (RPE) while preserving the photoreceptors that are lost in the focal continuous-wave laser treatment. The proposed mechanism of STL is the absorption of radiation by melanin that induces heat shock proteins, which may, in turn, restore the RPE function.[4] This approach also supplements the pathophysiological hypothesis of hyperpermeable pachychoroid vessels that increase hydrostatic pressure leading to focal RPE detachments. The subsequent increase in hydrostatic pressure overwhelms the RPE leading to subretinal fluid (SRF) accumulation.[5] Improvement in RPE function may increase its pumping action leading to the resolution of SRF. The STL, though, needs careful titration as there is no visible endpoint that has been known to lead to undertreatment. Also, accidental delivery of threshold dose is known to occur. This makes the STL a controversial option to be utilized in CSCR with the foveal and juxtafoveal leaks.

Off-label use of photodynamic therapy (PDT) for treating CSCR by initiating free radical-induced vascular remodeling reducing the vascular permeability is a preferred option to treat foveal leaks at many centers.[6] The first use of PDT was reported by Yannuzzi e*t al*.[7] in chronic CSCR, since then it has been reported to also provide a faster SRF resolution with better recovery of retinal sensitivity in acute CSCR. Half-dose PDT has been shown to increase the likelihood of SRF resolution and improved visual outcome in a placebo-controlled prospective trial in cases of acute CSCR and has been proven to be as effective or superior to full-dose, half-fluence, or half-time PDT in both acute and chronic CSCR.[6] Half-dose PDT reduces the chances of systemic side effects of verteporfin, as well as angiogenic occlusion, reported rarely with full-dose PDT. Future trials thus should be undertaken to compare the effectiveness of STL with half-dose PDT rather than placebo as the aim of treatment with STL aligns more with PDT rather than observation.

Recent landmark studies by Matsumoto *et al*.[8] and Spaide[9] have proposed vortex vein ampulla as the prime resistor of choroidal flow. These observations suggest that CSCR occurs secondary to congestion of vortex vessels, which in turn leads to a thick choroid. Subsequently, venovenous anastomoses formed among different vortex veins act as a decongestive mechanism. Chronic congestion and formation of pachyvessels cause compression of choriocapillaris and ischemia triggering pachychoroid neovasculopathy. Maturation of these vessels leads to polypoidal choroidal vasculopathy. While we aim to treat the patients of acute CSCR for resorption of SRF, the patients should be followed up for a lifetime with enhanced depth imaging with spectral-domain optical coherence tomography (OCT) or swept-source OCT to measure the choroidal thickness.

The evolving professional demands for good visual acuity will soon be changing the treatment algorithm of CSCR. We congratulate the authors to complete and publish the study providing an objective parameter for the follow-up. Future comparative trials to evaluate various imaging or diagnostic markers and different treatment options will help the fraternity formulate new guidelines for the treatment.

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