

# Letter to the Editor: Characterization of Choriocapillaris and Choroidal Abnormalities in Alport Syndrome

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## Letter to the Editor: Characterization of Choriocapillaris and Choroidal Abnormalities in Alport Syndrome

We have read with great interest the research paper titled “Characterization of Choriocapillaris and Choroidal Abnormalities in Alport Syndrome” by Cicinelli et al.<sup>1</sup> We would like to congratulate the authors on their excellent work. However, we discussed several questions that have arisen from the paper. Here are our comments and suggestions.

Angiotensin II acting via type I receptors leads to chorioretinal vasoconstriction.<sup>2,3</sup> Therefore, angiotensin-converting enzyme inhibitors and angiotensin receptor blockers may have a significant effect on choroidal thickness. Accordingly, Temel et al.<sup>4</sup> found a statistically significant increase in choroidal thickness at 1 month after perindopril treatment initiation compared with baseline in treatment-naïve hypertensive patients. Furthermore, Gross et al.<sup>5</sup> showed that early treatment with angiotensin-converting enzyme inhibitors or angiotensin receptor blockers delays the onset of end-stage renal disease in Alport syndrome (AS). In the absence of specific gene therapy, these agents remain the gold standard treatment owing to their renoprotective effects in patients with AS. Although confounding is common in observational studies, baseline imbalance between transplanted and nontransplanted AS subgroups in angiotensin-converting enzyme inhibitors or angiotensin receptor blockers treatment history is a potential source of bias that may contribute to significant distortion, which modifies an association.

Moreover, patients with AS were divided into two subgroups on the basis of the history of kidney transplantation. Although preemptive kidney transplantation is the preferred renal replacement therapy in end-stage renal disease, only approximately 2.5% of patients in the United States undergo a kidney transplant as an initial treatment modality.<sup>6</sup> The vast majority of patients undergo pretransplant dialysis treatment. The survival of the patient and the post-transplant graft is significantly impacted by longer waiting times on dialysis.<sup>7</sup> Burton et al.<sup>8</sup> demonstrated that repetitive myocardial injury with consequent fibrosis and reduced left ventricular systolic

function can be induced by hemodialysis (HD). A presumed underlying pathophysiological mechanism is ischemia owing to microvascular dysfunction.<sup>9</sup> Some clinical studies suggest that the choroid, and retina to a lesser extent, significantly thins after HD.<sup>10</sup> The cause of this is not yet understood fully. Some possible explanations include changes in blood pressure, serum osmolality, and body fluid distribution.<sup>11</sup> Hence, we are of the opinion that the dialysis type (HD or peritoneal dialysis) and modality (e.g., ultrafiltration), as well as total duration of dialysis, must be taken into account in the analysis of choroidal and choriocapillaris parameters. In addition, in patients with no history of kidney transplantation, who are currently undergoing intermittent HD, the time interval between the last HD session and optical coherence tomography measurements may be of utmost importance.

Last but not least, potential adverse effects of immunosuppressive treatment in transplant recipients cannot be excluded, as the authors pointed out in the discussion. Gass et al.<sup>12</sup> reported different chorioretinal changes in four patients after kidney transplantation and in one patient after heart–lung transplantation taking prednisone, cyclosporine, and azathioprine. Numerous retinal abnormalities with subfoveal choroidal thickness changes were observed in asymptomatic renal transplant patients on low-dose corticosteroid therapy.<sup>13</sup> It is worth noting that similar findings were reported in a patient after liver transplantation for chronic hepatitis C virus infection taking tacrolimus with mycophenolate mofetil for 3 years.<sup>14</sup> Although these findings may be related to underlying disease,<sup>15</sup> the type, dose, and duration of immunosuppressive treatment should be described in sufficient detail owing to its potential association with various chorioretinal changes.

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