The eye: a window on kidney diseases

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Ocular involvement, which causes significant morbidity and mortality, is an important indicator for the detection of underlying systemic diseases. Systemic processes can affect almost any part of the eye and visual pathway. Ocular pain and visual impairment require urgent assessment by an ophthalmologist. Early recognition and treatment of both the ocular manifestations and the systemic condition can lead to an improved visual prognosis and a reduction in severe complications and mortality.

Richard Bright, an early pioneer in morbid anatomy and clinical signs and symptoms of kidney disease first reported the association between renal disease and blindness in 1836 [1]. We now know that the period of organogenesis for both the eyes and the kidneys spans the fourth to sixth weeks of gestation. Therefore, any disturbances in embryogenesis during this period can cause anatomic and functional abnormalities in the two organs. Of more common interest to the renal physician are the ocular and functional abnormalities in the two organs. Of more common interest to the renal physician are the ocular and functional abnormalities in the two organs.

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systemic disease and identifying significant visual changes in those patients already known to have nephrotic proteinuria undergoing treatment. A comprehensive eye examination should be carried out in patients with chronic or end-stage kidney disease as was demonstrated by the CRIC study group [8]. They examined retinal photographs of 1936 individuals with varying stages of kidney disease and found that 45% had pathologies that required ophthalmologic follow-up, while 3% had serious eye lesions that required urgent treatment. This group determined further associations from this cohort, including the fact that an estimated glomerular filtration rate (GFR) <30 mL/min per 1.73 m² was associated with a risk three times greater for suffering from a retinopathy than in patients with a normal GFR. Retinopathy is often asymptomatic in its most treatable stage, and delay in diagnosis can result in a significant increase in the risk of visual loss.

The current publications by Wong et al. and Bansal et al. add interesting data to the literature. Their cases highlight the relationship between ocular manifestations of systemic diseases and also the importance of ocular examination and screening of patients for any potential visual threat. With this in mind, treatment can be applied or advice provided before the patient becomes irreversibly visually impaired. Wong and Bansal and their co-authors demonstrate that ocular conditions are good indicators of the metabolic control of the disease processes, and they make a good point about cases of chronic renal failure that first present to an ophthalmologist with an ocular complication that reveals the renal insufficiency.

(See related articles by Bansal et al. Hypotension-induced blindness in haemodialysis patients. Clin Kidney J 2014; 7: 387–390 and by Wong et al. Exudative detachment as a masquerader in hypoalbuminaemic patients. Clin Kidney J 2014; 7: 406–410)

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