Ophthalmoscopy for general practitioners

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Cardiovascular disease (including ischaemic heart disease and stroke) remains the most common cause of death.[1] Traditional risk factors for cardiovascular disease (such as hypertension, hyperlipidaemia and cigarette smoking, among others) allow doctors to identify, monitor and treat high-risk patients.[2-7] However, a large proportion of cardiovascular morbidity and mortality is not explained by these risk factors. As a result, there is a possibility of finding additional variables for cardiovascular risk stratification.

Atherosclerosis is a systemic disorder that uniformly affects the vascular system.[2,4] However, the clinical manifestations rarely appear simultaneously in different vascular beds in the same patient, as a result of to the different sizes of the arteries supplying different organs. Since it is a systemic disorder, its clinical manifestations would show an ordered progression, such that changes in one organ can predict the next organ most likely to be affected. Knowledge of the order in progression would be important, because if damage to any organ is known, damage to the next may be predicted.

Recent research provides evidence of the role of erectile dysfunction as a common precursor of systemic atherosclerosis.[8-11] The results show that erectile dysfunction may play a role in predicting cardiac and systemic vascular disorders. This suggests that there is a possible correlation between penile arterial vascular status, in a patient with erectile dysfunction, and retinal vascular findings, as assessed by ophthalmoscopy. Erectile dysfunction and cardiovascular disease share common risk factors, and the pathological changes in the cavernous tissue of a patient with erectile dysfunction are similar to those in the vascular walls elsewhere in the body of a patient suffering from generalised atherosclerosis.[8]

Retinal blood vessels are of the most superficial branches of the vascular tree. Pathological changes in these vessels can be easily seen by ophthalmoscopy,[12] which affords a unique opportunity for non-invansive assessment of the systemic microcirculation. Retinal arterioles have anatomical and physiological characteristics similar to those of the cerebral and coronary microcirculation.[1] Retinal microvascular abnormalities, such as retinal arteriolar narrowing and retinopathy, have been associated with systemic vascular disorders, including hypertension, diabetes mellitus, metabolic syndrome and cardiovascular diseases,[2] suggesting that they can be used as a marker of generalised atherosclerosis.

The clinical value of ophthalmoscopy is to reveal the systemic vascular condition of the patient. Examining the fundus has not been important in assessing patients with erectile dysfunction. Now, general practitioners may use ophthalmoscopy to assess not only atherosclerosis, but also to predict the condition of the penile cavernous arteries. At present, optometrists and ophthalmologists use ophthalmoscopy routinely as a diagnostic tool to examine the retina and ocular media.[12] General practitioners can use ophthalmoscopy as a diagnostic tool for generalised atherosclerosis and erectile dysfunction. The retina provides a window of opportunity to study the human circulation.

Although general practitioners are not expected to manage ocular diseases and erectile dysfunction, they have an important role to play as the gatekeepers, by performing ophthalmoscopic examinations. By so doing, they can potentially not only save the sight, but the life, of a patient. The general practitioner can make a difference by making appropriate referrals after performing a basic assessment. Ophthalmoscopy is a valuable tool for general practitioners. It is estimated that 50% of patients presenting at the general medical clinic have clinically important pathology in the ocular fundus.[13]

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