

CORRESPONDENCE

End Organ Damage In Hypertension

by Prof. Dr. med. Roland E. Schmieder in volume 49/2010

Not Very Meaningful

In principle, funduscopy is a fascinating method to investigate in vivo the intracranial vasculature for hypertension related changes. The authors rightly point out, however, that vascular changes in themselves (stages I and II of hypertensive retinopathy) are not very meaningful. The overlap with “normal” (for example, age related) vascular changes is too big for the ophthalmologist to be able to contribute to risk assessment in individual patients. In patients with parenchymatous changes of stages III and IV, due to highly elevated blood pressure any treating general practitioner or specialist in internal medicine knows that urgent treatment is required. Ophthalmologists can therefore not contribute any further information that would be of additional benefit in this scenario either.

However, Professor Schmieder’s article (2) suggests that using new, computer supported methods for vascular analysis of the ocular fundus improves prediction of patients’ individual risk of developing hypertensive complications. Some individual health services (that patients have to pay for) create the same impression. A recent literature review does not support this assumption (1). Rather, it summarizes that computer aided methods to detect less pronounced vascular changes currently contribute little additional information to risk prediction made by the internal medical specialist.

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Retinopathy as a Differential Diagnosis

With regard to the recommendation to examine the ocular fundus in a “hypertensive emergency”, I wish to add that in severe hypertension it is not only retinopathy that may develop—ranging from vascular changes, hemorrhages, ischemic signs (cotton-wool spots), exudates, to serous retinal detachment.

Schmieder also mentioned papillary swelling (1). This may look similar to papilledema, but typically, in increased intracranial pressure, this condition is not associated with retinopathy—as the most important differential diagnostic criterion. In malignant hypertension, choroidal infarctions—known as Elschnig’s spots—has been observed (2). Such chorioidal vascular disorder has also been found in experimentally triggered hypertension in monkeys (3, 4).

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In Reply:

I thank Professor Schmidt for his remarks. He expands on using funduscopy in hypertensive emergencies and also distinguishes papilledema as a differential diagnosis to papillary swelling in the hypertensive emergency setting. Elschnig described in 1904 for the first time small, round, brown-black or black spots that are surrounded by a yellow circle. These are infarctions of the vascular epithelium (1). This finding may also be discovered in addition to fundus hypertonicus at stage III or IV in one or both eyes.

Schneider shares our view that funduscopy in the assessment of early hypertensive changes (stage I and II fundus hypertonicus) should be viewed critically. However, new technologies open up opportunities for detecting early vascular changes reliably by means of computer assisted procedures. An increased arteriovenous ratio in the ARIC study (follow-up examination of 10 358 patients) predicted the occurrence of a stroke, in addition to the classic risk factors (2). Even more pertinent is the finding that a raised arteriovenous ratio (upper quintile) highly significantly predicted the development of hypertension in patients whose blood pressure was normal at the outset of the study (3). The prospective cross sectional study (“talking eyes”)

investigated the use of the arteriovenous ratio in the field and found consistent results (4). It was not the aim of the review article to present the pros and cons of these methods in the routine clinical setting. New technologies create the option of including new parameters (such as the “wall to lumen” ratio of retinal arterioles) in everyday clinical practice in future, but at the moment they are still in the clinical research stages (5).

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