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# RETINAL ARTERIOLAR STRUCTURE IN PRIMARY HYPERTENSION – REVIEW OF THE DATA

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of changes of the parameters depends on heart pulsation. Retinal arterioles morphology can be measured by adaptive optics technology. In real time correlating to heart beat retinal microperfusion was illustrated by Laser Speckle Flowgraphy. Perfusion in retinal arterioles and venules was studied using dual beam Fourier-domain Doppler optical coherence tomography. Non-mydratric cameras and scanning laser ophthalmoscopy enable quantification of arteriole-to-venule diameter ratio (AVR) or oxygen saturation in retinal vessels. In studies exploring retinal microperfusion the crucial parameters can be obtained using SLDF.

#### Focus

#### RETINAL ARTERIOLAR STRUCTURE IN PRIMARY HYPERTENSION – REVIEW OF THE DATA

Andrzej Januszewicz

Vascular dysfunction and remodelling due to elevated blood pressure constitutes an early step in the pathogenesis of atherosclerotic disease. Microvascular remodelling reduces tissue perfusion and impedes blood-tissue exchange. These processes could lead to inadequate perfusion and tissue hypoxia in situations of high metabolic demand. Impaired tissue perfusion may be involved in target-organ damage and complications that involve several vascular beds.

Of all of these organs, the retina represents an open and easily accessible window for the *in vivo* study of human microcirculation. Recently a new approach focused on retinal-arteriolar structural parameters by using scanning laser Doppler flowmetry (SLDF) with automatic full-field perfusion imaging analyses has been introduced. By means of SLDF it is possible to reliably assess the structural parameters of the retinal arterioles.

In studies based on SLDF technique it has been shown that blood pressure is an independent determinant of wall-to-lumen ratio of retinal arterioles. It was also demonstrated that wall-to-lumen ratio correlates with urinary albumin excretion. It was shown that patients with better blood pressure control had significantly lower wall-to-lumen ratio than patients with worse blood pressure control. Recently it has been also shown that our data indicate treatment with aliskiren, direct renin inhibitor, improves altered vascular remodelling of retinal arterioles in hypertensive patients.

In summary, evaluation of retinal arteriolar structure, enables not only to assess early organ damage in patients with hypertension but also to assess the effect of hypertension treatment on small arteries remodelling *in vivo*.

#### Invited lecture

#### SODIUM INTAKE IN RELATION TO CARDIOVASCULAR OUTCOME

Katarzyna Stolarz-Skrzypek

#### Abstract

The data associating blood pressure to salt intake in humans comes from randomized clinical trials of interventions on dietary salt intake and population studies. Generally, estimates from meta-analyses are similar to those derived from prospective population studies (1.7 mm Hg change in systolic blood pressure per 100 mmol change in 24-hour urinary sodium). This observation, however, does not translate into a higher risk of incidence rate of hypertension in individuals consuming a high-salt diet. On the other hand, prospective studies relating cardiovascular outcomes to 24-h urinary sodium excretion produced inconsistent conclusions. Thus, available evidence does not support current recommendations of an indiscriminate and generalized reduction of salt intake in the general population.