

**O319****Quantitative versus Qualitative evaluation of retinal microvascular damage in patients with mild systemic hypertension**

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**Background:** Retinal microvascular abnormalities are expression of damage in systemic hypertension (HP). In clinical practice, the criteria for the classification of damage in the retinal microcirculation are based on data collected by ophthalmoscopy and qualitative fundus photograph evaluation. Variability in inter and intra-observers analysis and the absence of quantification of damage are the limits of this approach. Also the ophthalmoscopy and fundus photograph evaluation do not allow to identify early stages of retinal microvascular damage. These considerations clarify the interest in the digitalized study of fundus oculi. Retinal arteriolar/venular diameters ratio (AVR) has been proposed as a parameter in the cardiovascular risk stratification. Aims: To assess the capability of A/V Ratio in identifying patients with mild essential and secondary HP and compare the results with fundus photograph evaluation.

**Method:** 61 pz with uncomplicated HP (31 pz with essential HP (Group A) and 30 pz affected by hyperaldosteronism (Group B)), were considered for the analysis. Twenty-two healthy subjects were used as control (Group C). AVR, External Diameter of superficial Temporal Artery (EDTA), Internal Diameter of superficial Temporal Artery (IDTA) and the Thickness of Temporal Artery (TTA) were computed by non mydriatic retinal camera with a computer-assisted method Vessel lMap 2-Z. A/V nicking, sclerosis, tortuosity, were evaluated by two observers. Retinopathy score was assigned to each patient (grade 0, grade 1, or grade 2) based on the Keith-Wagener-Barker system. Statistical quantitative analysis: Mean values of numeric variables listed in Tab I were compared in three groups of patients using Student t-test. Qualitative statistical analysis : Sensitivity and Specificity of categorical variables, listed in table II, were also evaluated in three groups of pz. Results: see Tab I and Tab II.

**Conclusions:** Quantitative digitalized analysis of fundus oculi seems to distinguish normal subjects from patients with uncomplicated mild HP better than qualitative fundus photograph evaluation. In particular, the AVR has been able to identify the pz with HP secondary to hyperaldosteronism, in the group of HP pz, ie in pz with earlier and more severe vascular remodeling

TAB. I Results of Quantitative analysis

Groups of Patients	A/V Ratio	EDTA mean value +SD	IDTA mean value +SD	TTA mean value +SD
Group A 31 pz Essential Hypertension	0,84±0,06	103 ± 9	46±6	27 ± 3
Group B 30 pz Secondary Hypertension	0,81±0,08	99 1±7	43± 7	28±3
Group C 22 pz Healty Subjects	0,88±0,07	109 ±12	50 ± 6	27 ± 2
Group A+B 61 pz	<b>0,0083</b>	<b>0,01</b>	<b>0,0015</b>	NS
<i>p</i> Group B vs C	<b>0.01</b>	<b>0.02</b>	<b>0.001</b>	NS
<i>p</i> Group A vs C	NS	<b>0.05</b>	<b>0.02</b>	NS
<i>p</i> Group A vs B	NS	NS	NS	NS

TAB. II Results of Qualitative analysis

Qualitative Analysis Variables	Sensitivity	Specificity	Pos predic tive value	Neg predi ctive value
A/V Nicking	58%	59%	77.5	30.2
Sclerosis	40.9%	63.6%	75.7 %	28%
Tortuosity	36%	68%	75%	27%
<b>Retinopathy Grade 0</b>	<b>68.8%</b>	<b>40.9</b>	<b>76.6</b>	<b>32.1</b>