EFFECT OF ANTIANGIOGENIC TREATMENTS ON BIOMARKERS OF OXIDATIVE STRESS IN PATIENTS WITH AGE RELATED MACULAR DEGENERATION

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Background

Many authors has hypothesized that oxidative stress and exudative age-related macular degeneration (AMD) share common antecedents and proposed that novel biomarkers associated with oxidative stress be evaluated for their potential relationship with AMD.

Purpose

Analyze the effect of anti-VEGF therapy about biomarkers of oxidative stress in patients with AMD.

Materials and Methods

A total of 73 patients with exudative AMD with no previous anti-VEGF treatment were treated with two Anti-VEGF treatments: Ranibizumab and Pegaptanib. The follow up was 6 months.
The parameters were determined before and after antiangiogenic therapy: total antioxidant activity (TAS), reduced and oxidized glutathione (GSH/GSSH), glutathione peroxidase (GPx), glutathione reductase (GR), superoxide dismutase (SOD) and protein carbonyl groups.

	Before antiangiogenic therapies		After antiangiogenic therapies	
Average value of	**Pegaptanib**	**Ranibizumab**	**Pegaptanib**	**Ranibizumab**
TAS (µM Trolox)	166.6±20.4	202.4±27.4	151,2 ±16,5	193,7±122,1
GSH/GSSH (µM)	8.2±1.4	6.2±1.1	7,9±1,6	5,8±2,1
GPx (U/L)	7149,1±2120	7328,1±1954	6549,1±1511	6728,1± 1846
SOD (Ug/Hb)	885.8±25.4	815.8±75.8	845.8±22.1	795.8±75.8
GR (U/L)	54.1±3.4	50.6±2.9	52.6±2.4	48.7±2.7
carbonyl groups (µmol/mg)	72.1±7.0	68.3±4.1	75,1±8,1	71.8±5,8

After antiangiogenic therapies, average values of total antioxidant activity, GSH/GSSH and endogenous antioxidant enzymes decreased slightly and values of carbonyl groups were increased (there were not significant differences).

Conclusions

There was not statistically significant difference but Pegaptanib and Ranibizumab may disturb the homeostatic maintenance of oxidative stress.