Decrease in VEGF and in Inflammatory Markers is Associated with Diabetic Proliferative Retinopathy

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Diabetic retinopathy is the most severe complication of diabetes mellitus (DM), associated with microvascular damage.
Methods: 73 patients with DM type II (Group A: 25 patients [12 males], age 62.8±10.8 years, no diabetic retinopathy; Group B: 25 patients [19 males], age 61.9±9.4 years, non-proliferative retinopathy; and Group C: 23 patients [13 males], age 59.2±10.3 years, proliferative retinopathy) and 23 healthy subjects (14 males; age 44.3±11.6 years) served as controls. We studied levels of hs-CRP, sVCAM-1, and VEGF in different subgroups of patients with DM type II.
Results: Hs-CRP levels were high in patients (4391±4175, 4109±4533, 3005±3842 ng/ml, respectively) compared with controls (1659±1866 ng/ml); however, only patients in groups A ($p=0.01$) and B ($p=0.03$) had a significant change compared with controls. Similar findings were observed for sVCAM-1 levels (706±347, 746±328, 638±208 ng/ml, respectively) vs. controls (552±143ng/ml). A significant difference in sVCAM-1 levels were found between groups A ($p=0.05$) and B ($p=0.01$) and controls, but not for group C ($p=0.125$). Soluble VEGF levels (493±353ng/ml, 625±342ng/ml, 368±223ng/ml, respectively, vs. controls 392±355ng/ml) showed no significant difference ($p\geq0.05$) except for group B ($p=0.03$); however, a significant decrease was observed with disease progression ($p=0.006$).
Conclusions: All patients with DM type II had high inflammatory and angiogenic markers, but a decrease in these markers was observed in patients with progressive disease (diabetic proliferative retinopathy). Biomarkers of inflammation and angiogenesis may detect progression of diabetic vascular disease and may guide earlier interventions to prevent systemic complications.