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Evaluation of homocysteine and its metabolic cofactors in patients with non proliferative and proliferative diabetic retinopathy

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Abstract

Purpose: Homocysteine, a well-known inducer of vascular endothelial cell damage has been associated with extracellular matrix changes. Many studies demonstrated that high levels of this aminoacid in diabetic patients increases significantly the risk of the development of this pathology. This study has been undertaken to investigate the role of homocysteine and its cofactors during the progression of the diabetic retinopathy.

Methods: We measured the plasma levels of homocysteine, folic acid, vitamin B6 and vitamin B12 in 113 diabetic type 2 patients with non proliferative retinopathy (NPDR), 52 with proliferative diabetic retinopathy (PDR) and 50 healthy subjects used as control group.

Results: We found higher plasma levels of homocysteine in NPDR group compared to the control group ($p<0.001$). Also in the PDR group we detected an increase of homocysteine compared to control group ($p<0.001$) and NPDR group ($p<0.01$). The severity of DR was associated with lower folic acid and vitamin B6 levels in all groups but the lowest levels were observed in PDR ($p<0.05$). On the contrary, vitamin B12 plasma levels were lower in both NPDR and PDR compared to control ($p<0.001$) without significant difference between PDR and NPDR groups.

Conclusions: These findings demonstrated that homocysteine, folic acid, vitamin B6 and vitamin B12 may play a role in the development and progression of diabetic retinopathy.