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Article

Serum homocysteine level in Behçet's disease

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Abstract—Recent studies of the prevalence of hyperhomocysteinemia in Behçet's disease have shown contradicting results. The aim of the present study was to investigate the serum homocysteine level in patients diagnosed as having Behçet's disease. Venous blood was taken from 27 patients with Behçet's disease and 21 healthy controls. Serum homocysteine levels were measured using fluorescence polarization immunoassay. In addition, serum vitamin B12 and folic acid levels were measured by chemiluminescent enzyme immunoassay. The mean levels of vitamin B12, folic acid, and homocysteine were not significantly different in patients with Behçet's disease when compared with the healthy controls ($p = 0.17$, $p = 0.13$, and $p = 0.05$, respectively). The results of this study confirmed that homocysteine levels were not elevated in Behçet's disease when compared with the control group. Further studies in a subset of Behçet patients with a history of thrombosis are needed to determine the prevalence of hyperhomocysteinemia in the thrombotic form of the disease.

Key words: Behçet's disease; homocysteine; hyperhomocysteinemia; thrombosis.

INTRODUCTION

Behçet's disease (BD), which was first described by a Turkish dermatologist, Hulusi Behçet, is a chronic multisystem disorder with unknown etiology. It is characterized by recurrent oral apthous stomatitis, genital ulcers, and iridocyclitis with hypopyon [1–4]. The histopathological features of BD are characterized by vasculitis and thrombosis [4]. Increased risk of thrombosis has been reported in BD and the disease has been considered a hypercoagulable-prethrombotic state. The exact pathomechanism of thrombosis is still unknown, but it is believed that en-

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dothelial injury may lead to the thrombotic tendency in BD [5]. Up to now, several haemostatic parameters including protein C, protein S, antithrombin III, selectins, von Willebrand factor, and homocysteine have been investigated in BD [5–11]. Homocysteine is a sulfur-containing amino acid. The normal range of plasma total homocysteine level has been recently reported as 5–15 μmol/l in the healthy population [12]. Elevations in plasma total homocysteine level may be caused by nutritional deficiencies in folate, vitamin B12, or vitamin B6, which are the cofactors of the enzymatic reactions involved in homocysteine metabolism. Smoking may also cause higher plasma homocysteine levels. Several diseases including kidney dysfunction, acute lymphoblastic leukemia, and breast cancer may be associated with hyperhomocysteinemia [13]. Recently, hyperhomocysteinemia has been considered an independent risk factor for coronary artery disease, peripheral vascular disease, and thrombosis [5]. Recent studies have shown contradicting results on the prevalence of hyperhomocysteinemia in BD. In this study, our aim was to investigate serum homocysteine levels in BD patients.

MATERIALS AND METHODS

The study group included 27 patients with BD (13 male and 14 female; mean age: 33 ± 3 years) and 21 sex- and age-matched healthy volunteers (10 male and 11 female; mean age: 36 ± 7 years). The patients and subjects of the control group included in the study were non-smokers and had no systemic disease or nutritional deficiency that could lead to hyperhomocysteinemia. They did not take any vitamins or drugs. All patients of BD fulfilled the criteria of the International Study Group of BD [14].

Venous blood (anticoagulant) was taken from 27 patients with BD and 21 healthy controls. Serum homocysteine levels were measured using fluorescence polarization immunoassay (IMX System, Abbot Diagnostics, Wiesbaden, Germany). The intra-assay and inter-assay coefficients of variation for the lowest value (5.9 μmol/l) were 2.2% and 5.2%, respectively. Serum vitamin B12 and folic acid levels were measured by using chemiluminescent enzyme immunoassay after a heat denaturation step to release these analytes from carrier proteins (Immulite One, DPC, Diagnostic Products Co., USA). The intra-assay coefficients of variation for the lowest value of vitamin B12 were 11.4% and 17%, and for folic acid 9.0% and 8.9%, respectively.

Data were statistically analyzed by Student's t-test. The values expressed are means $\pm$ SD. A p value less than 0.05 was considered to indicate statistical significance.

RESULTS

Hyperhomocysteinemia was detected in 8 out of 27 patients with BD (29.6%) and in 13 out of 21 healthy controls (57.42%) (Tables 1 and 2). The mean levels of vitamin