was cured with a two week course of antibiotic treatment with ciprofloxacin at a dosage of 1 g/day and teicoplanin at a dose of 200 mg/day. Joint drainage was performed on two occasions. The ESR was 2 mm/1st h and CRP was 20.5 mg/l after the end of treatment.

DISCUSSION

Both the two TNFα antagonists, the mouse-human monoclonal IgG1 monoclonal antibody infliximab and the 7 kDa IgG1 recombinant fusion protein etanercept, have been shown to be effective in ankylosing spondylitis and psoriatic arthritis.[5 6] Severe uSpA, unresponsive to sulfasalazine, is another possible indication for TNFα neutralising treatment.[7] Our patient with severe uSpA unresponsive to sulfasalazine and methotrexate partially improved with infliximab. Unfortunately, the drug was stopped owing to the infection caused by *Moraxella catarrhalis*.

Opportunistic infections, including tuberculosis,[1] aspergillosis,[2] listeriosis,[3] and histoplasmosis,[4] are potential complications of treatment with TNFα blocking agents. *Moraxella catarrhalis*, a component of the normal bacterial flora of the upper airways and possibly the female genital tract, has recently emerged as a cause of different illnesses, including sinusitis, otitis media, conjunctivitis, laryngitis, bronchitis and pneumonia, and systemic infections in immunocompromised patients.[8] There are also reports of septic arthritis due to *Moraxella catarrhalis*.[9 10] Our patient developed *Moraxella catarrhalis* arthritis after the third infusion of infliximab. He was immunocompromised also because he had received immunosuppressive disease modifying treatment with methotrexate in the eight months before beginning the anti-TNFα blocking therapy.

In conclusion, we suggest that *Moraxella catarrhalis* should be included in the list of opportunistic organisms inducing infection associated with anti-TNFα blocking therapy.

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Lack of association between angiotensin converting enzyme gene polymorphism and Korean Behçet's disease

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The histological hallmark of Behçet's disease (BD) is a vasculitis, and endothelial dysfunction has a role in the development of the vascular lesions in BD.[1 2] Angiotensin converting enzyme (ACE) plays a part in the renin-angiotensin and kallikrein-kininogen systems by producing angiotensin II from angiotensin I and by inactivating bradykinin. The ACE gene is located on the long arm of chromosome 17, and insertion and deletion (I/D) polymorphism of this gene is strongly related to the levels of circulating ACE: the serum levels of ACE in the DD genotype, homozygote for the deletion allele, are about twice as high as those in the II genotype, homozygote for the insertion allele.[3] In addition, the DD genotype is associated with endothelial dysfunction, as the stimulated endothelial or donated nitric oxide response is blunted.[4] Moreover, angiotensin II may participate in the vascular pathogenesis of several diseases through vascular smooth muscle cell contraction and proliferation, monocyte adhesion, and platelet aggregation. However, to our knowledge, there have been no studies on the relationship between the ACE gene and BD. Thus, we studied the potential association between ACE I/D gene polymorphism and Korean BD.

PATIENTS, METHODS, AND RESULTS

The study group included 70 patients with BD (27 men and 43 women; mean (SD) age 38.1 (7.8)) fulfilling the international study group criteria[5] and 106 healthy controls (37 men and 69 women; mean (SD) age 37 (11.5)). All the subjects were ethnically homogenous Koreans, unrelated to each other. The cumulative history of severe manifestations was investigated during the disease course, as described in our previous study.[6] Informed consent was obtained from all the subjects.

ACE I/D polymorphism was determined by polymerase chain reaction genotyping.[7] The statistical significance was evaluated using χ^2 test, *t* test, or one way analysis of variance test. Values of $p<0.05$ were considered significant, and these were corrected by multiplying the values by the number of alleles in certain cases.

Table 1 shows that the distribution of genotypes and alleles of the ACE gene did not differ significantly between patients with BD and controls ($p>0.05$), and it was in Hardy-Weinberg equilibrium. In a comparison of clinical variables including sex, clinical manifestations, severe manifestations, and positivity of HLA-B51, no

Table 1 The distribution of angiotensin converting enzyme genotypes and alleles in the patients with BD and controls

		Genotype			Allele
	No	DD	ID	II	D *v* I
For study groups					
Patients with BD	70	17 (24%)	28 (40%)	25 (36%)	0.44:0.56
Controls	106	20 (19%)	44 (42%)	42 (40%)	0.40:0.60
For patients with BD					
Male (female)	27 (43)	9 (8)	12 (16)	6 (19)	0.56:0.44 (0.37:0.73)
Genial ulcerations	61 (9)	13 (4)	26 (2)	22 (3)	0.43:0.57 (0.56:0.44)
Skin lesions	65 (5)	15 (2)	26 (2)	24 (1)	0.43:0.57 (0.60:0.40)
Ocular lesions	20 (50)	5 (12)	6 (22)	9 (16)	0.40:0.60 (0.46:0.54)
Positive pathergy test	24 (46)	4 (13)	10 (18)	10 (15)	0.37:0.63 (0.48:0.52)
Intestinal lesions	16 (54)	2 (15)	9 (19)	5 (20)	0.41:0.59 (0.45:0.55)
Peripheral arthritis	16 (54)	6 (11)	6 (22)	4 (21)	0.56:0.44 (0.41:0.59)
Vascular lesions	11 (59)	2 (15)	5 (23)	4 (21)	0.41:0.59 (0.45:0.55)
CNS lesions	7 (63)	2 (15)	2 (26)	3 (22)	0.43:0.57 (0.44:0.56)
Severe manifestations	27 (43)	5 (12)	12 (16)	10 (15)	0.41:0.59 (0.46:0.54)
Positivity of HLA-B51	37 (33)	9 (8)	13 (15)	15 (10)	0.42:0.58 (0.47:0.53)

The values in parentheses in the data for patients with BD are for the patients lacking each criterion: there were no significant differences in the comparison of genotype and allele frequencies between any two groups, including patients with BD *v* controls, male *v* female patients with BD, and patients with BD with criterion *v* without criterion (all $p>0.05$).

significant associations were found in the frequencies of genotypes and alleles between patients with BD with and without each criterion (all $p>0.05$). Although the D allele frequency was significantly higher in male patients than in female patients, the significance was lost when multiplying by the number of alleles ($p = 0.033$, $p_{corr} = 0.066$).

The mean (SD) ages at onset of patients with BD in each genotype were 33.3 (8.3) (DD), 33.3 (8.0) (ID), and 32.5 (8.2) years (II), and no differences were seen between groups ($p>0.05$). In a comparison of patients with BD with and without each genotype (DD, ID, II), frequencies of clinical variables (sex, clinical manifestations, severe manifestations, positivity of HLA-B51, mean age at onset) did not differ significantly (all $p>0.05$) (data not shown).

DISCUSSION

Genetic susceptibility to BD is affected by multiple genes, such as major histocompatibility complex (MHC) and non-MHC genes. Endothelial nitric oxide synthase (eNOS) gene polymorphisms are noted to be associated with the pathogenesis of various vascular diseases, including coronary artery disease (CAD), myocardial infarction (MI), hypertension, and renal diseases. Recently, we reported that Glu298Asp polymorphism of the eNOS gene was another susceptibility gene for Korean BD and other rheumatic diseases with vasculitis.[8]

ACE gene polymorphism is also reported to be a risk factor for CAD, MI, hypertension, and renal diseases. Furthermore, the DD ACE genotype is associated with endothelial dysfunction, which is believed to have an important role in the development of the vascular lesions in BD.[2 4] On the other hand, associations between the ACE gene and non-Behçet's rheumatic diseases with vascular involvement have been inconsistently reported.[9 10] We therefore considered that the ACE gene might be another candidate gene for BD. However, we could not detect any significant correlation between BD and ACE gene polymorphism. Because of the well known regional differences in the disease expression of BD, further studies in other ethnic populations will be required.

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