Research letters

Effect of infliximab on sight-threatening panuveitis in Behçet's disease

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Permanent loss of vision resulting from relapsing ocular inflammation occurs frequently in patients with Behçet's disease, despite intensive, chronic immunosuppressive therapy. Since tumour necrosis factor (TNF) might have an important pathogenetic role in Behçet's disease, we decided to give a single infusion of infliximab—a monoclonal antibody against TNF—to five patients with relapsing panuveitis, at the immediate onset of last relapse. Remission of ocular inflammation was evident within the first 24 h, and complete suppression was seen 7 days after treatment in all patients. No side-effects were noted. We suggest that infliximab is a rapid and effective new therapy for sight-threatening ocular inflammation in Behçet's disease.

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Behçet's disease is a chronic, relapsing, inflammatory disorder with mucocutaneous, ocular, articular, vascular, gastrointestinal, and central nervous system manifestations. Despite intensive immunosuppressive therapy, relapsing ocular inflammation, which occurs in about 70% of the patients, can lead to permanent loss of vision.[1] The cause of Behçet's disease is unknown; however, concentrations of tumour necrosis factor (TNF) and soluble TNF receptors are increased in the serum of patients with active disease.[2]

	Visual acuity	Anterior chamber cells (0–4)	Vitreous haze (0–3)	Vasculitis (+/−)	Retinal lesions (number)
Patient 1					
Day 0	HM	4	3	+	2
Day 1	CF	3	2	+	2
Day 4	0·05	1	1	+	1
Day 14	0·2	0	Trace	−	0
Patient 2					
Day 0	0·1	3	1	+	CMO
Day 1	0·3	1	Trace	+	CMO
Day 4	0·4	Trace	Trace	−	CMO
Day 14	0·5	0	0	−	..
Patient 3					
Day 0	0·7	4	2	−	3
Day 1	1·0	2	1	−	1
Day 4	1·0	Trace	Trace	−	0
Day 14	1·0	0	Trace	−	0
Patient 4					
Day 0	BV	3	1	−	5
Day 1	1·0	Trace	Trace	−	2
Day 4	1·0	0	0	−	1
Day 14	1·0	0	0	−	0
Patient 5					
Day 0	0·2	2	2	+	3
Day 1	0·5	Trace	1	+	1
Day 4	0·6	0	Trace	−	0
Day 14	0·7	0	0	−	0

HM=hand motion, CF=count fingers, CMO=cystoid macular oedema, BV=blurred vision.

Visual acuity and ocular score of inflammation at panuveitis relapse (day 0), and 1, 4, and 14 days after infliximab administration

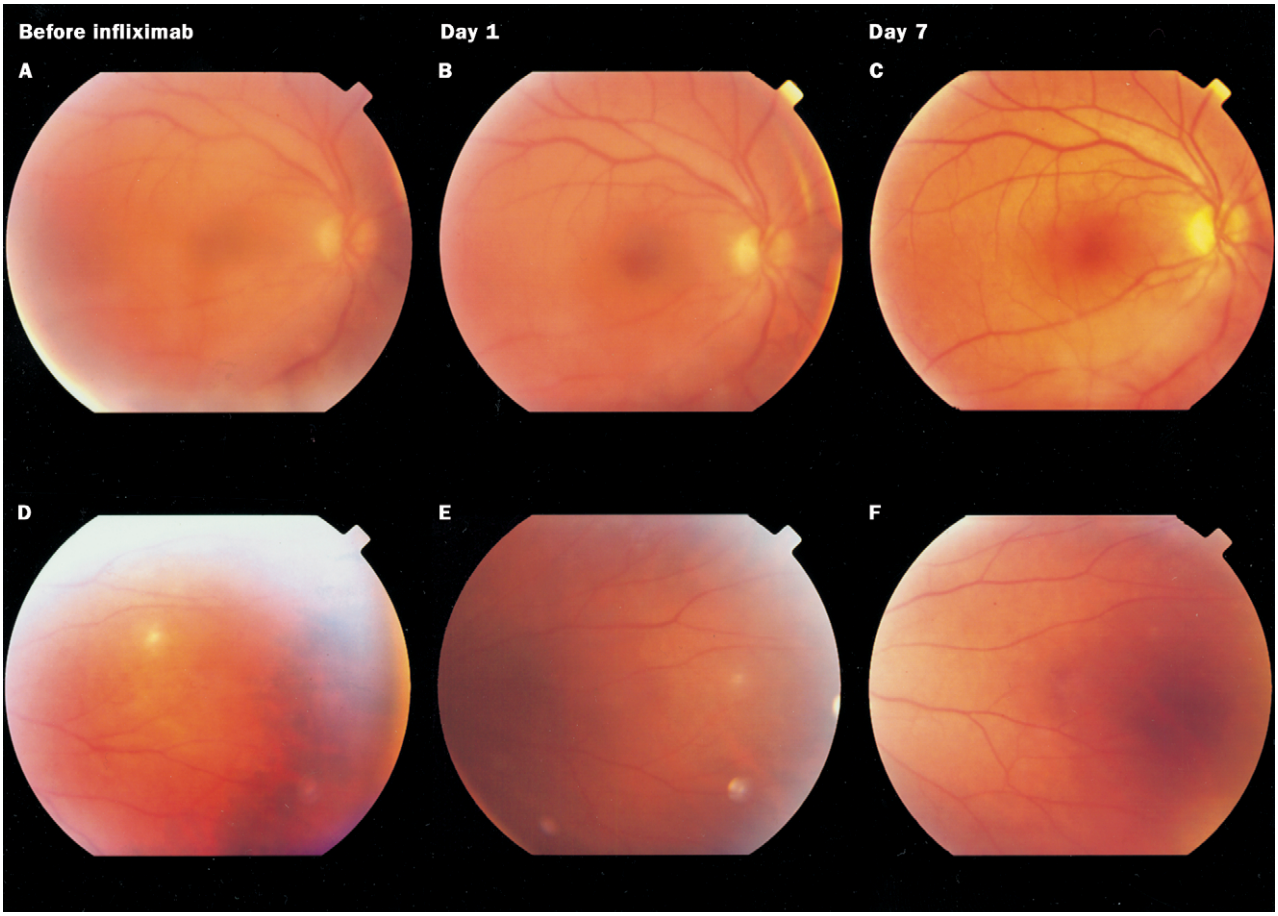
Therapeutic blockade of the activity of TNF has been successfully used for treating rheumatoid arthritis and Crohn's disease, in which TNF has a pivotal role in mediating inflammation.[3] We aimed to find out whether treatment with infliximab (Remicade, Shering-Plough, Athens, Greece), a monoclonal antibody to TNF, had any beneficial effect in five patients with long-standing Behçet's disease and a history of multiple relapses of uveitis.

We enrolled four men and one woman, aged 21–56 years, in this open study within 48 h of onset of relapse, and after obtaining informed consent. The patients had been followed up in our departments since their diagnosis, and had fulfilled International Study Group criteria[1] for a mean of 6 years. Acute deterioration of visual acuity and involvement of both anterior and posterior chambers confirmed the relapse of acute panuveitis in all patients. A single intravenous infusion of 5 mg/kg infliximab was given over 3 h in an outpatient setting. Systemic examination and detailed ophthalmological assessment, including visual acuity, measurement of intraocular pressure, slit-lamp biomicroscopy, and indirect ophthalmoscopy of the posterior segment followed by fundus photography, were done before (day 0) and 1, 2, 4, 7, 10, 14, 21, and 28 days after treatment.

Patient 1 had severe unilateral panuveitis while on ciclosporin A (5 mg/kg) and prednisolone 0·3 mg/kg; visual acuity was limited to hand motion only. Patient 2 relapsed bilaterally while on ciclosporin A (2·5 mg/kg); visual acuity was 0·4 in the right eye and 0·1 in the left eye. Patient 3 relapsed unilaterally while on ciclosporin A (2 mg/kg) and azathioprine (0·6 mg/kg); visual acuity was 0·7. In these three patients, infliximab was given in addition to their current therapy at the maximum doses (5 mg/kg for ciclosporin A, 0·5 mg/kg for prednisolone, and 1·2 mg/kg for azathioprine).

Using a standard scoring system to assess the anterior chamber cells (on a scale of 0 to 4), vitreous haze (0–3), and retinal infiltrates (presence of vasculitis and number of retinal lesions), we found that the degree of inflammation decreased by more than 50% on day 1, and by more than 90% at day 4; retinal infiltrates and vasculitis had completely resolved by day 7 in all patients. Visual acuity improved in all patients within the first 24 h: patient 1 was able to count fingers, patient 2 had acuities of 0·6 and 0·3, and patient 3 had normal vision. Visual acuity improved further until day 14 in patient 1 and patient 2 (table), and remained stable until day 28.

In view of these results, we decided to give infliximab to the two other patients without increasing the doses of current immunosuppressive treatment. Patient 4 had relapsed unilaterally (blurred vision) while on ciclosporin A (0·6 mg/kg) and azathioprine (1·2 mg/kg), and patient 5 had relapsed bilaterally (visual acuity 0·4 and 0·2) while on ciclosporin A (3 mg/kg), prednisolone (0·5 mg/kg), and azathioprine (2 mg/kg). After infliximab therapy, patient 4 had a striking decrease in inflammation within 24 h (table); by day 4, almost complete remission of panuveitis was seen.



Resolution of vitreous haze and a retinal lesion after infliximab therapy
Significant (2+) vitreous haze (A) and a retinal lesion in the mid-periphery (D) of the right eye before infliximab administration. Vitreous haze has decreased (1+) at day 1 (B) and cleared at day 7 (C). The retinal lesion has diminished by 50% at day 1 (E) and is barely detectable at day 7 (F).

In patient 5, remission of ocular inflammation and improvement of visual acuity was evident by day 1, and remission of panuveitis was seen at day 7 (figure). Visual acuity was normal (right) and 0·7 (left) at day 10, and remained stable until day 28 after infliximab administration.

At the onset of ocular relapse, concomitant oral aphthous ulcers were present in patients 3 and 4, and left knee and ankle arthritis developed in patient 2. Oral ulcers healed by day 2 after infliximab administration in both patients, and the oligoarthritis subsided within 4 days. No side-effects were noted in any of the five patients.

These findings indicate that infliximab administration leads to rapid and effective suppression of acute ocular inflammation and extraocular manifestations in patients with Behçet's disease. A rapid therapeutic effect is essential in these patients in order to prevent the development of fixed retinal lesions that cause permanent visual impairment. Such rapid effects are not seen with the current therapeutic approach, which requires large doses of non-selective immunosuppressive agents. Additionally, immunosuppressive treatment has substantial toxic effects, which limit its long-term use.[1] Taken together with two case-reports describing successful treatment with infliximab of orogenital and skin ulcers[4] and the gastrointestinal complications of Behçet's disease,[5] our findings indicate that TNF has a central pathogenetic role in this disease. We suggest that TNF blockade is an effective new therapy for sight-threatening uveitis and perhaps other severe vasculitic manifestations of Behçet's disease. Although the long-term consequences of chronic TNF inhibition are not known, expected side-effects after multiple infusions of infliximab include serious infections in some patients and development of autoantibodies against double-stranded DNA, as has been seen in about 9% of patients with rheumatoid arthritis treated for more than 1 year.[3] A study on the safety and the long-term effects of TNF blockade on visual outcome and extraocular manifestations in patients with Behçet's disease is currently underway.

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