receiving the first infusion. At the time of the second infusion he had a complete remission of all signs and symptoms. A new fluorescein angiography was performed just before the third infusion. At that time there was a normal optic disc aspect, improvement of macular oedema in the right eye and still in the mottled aspect of retinal capillary filling (fig 1B). Before the first infusion the erythrocyte sedimentation rate was 35 mm/1st h and the C reactive protein level was 34 mg/l. They decreased to 22 mm/1st h and 6 mg/l (normal <10 mg/l), respectively, by week 2 and remained within the normal range for the duration of the study.

DISCUSSION

This is the first report, to our knowledge, of the treatment of ocular BD with anticytokine specific treatment. Treatment with infliximab led, in our patient, to a complete remission of all disease manifestations and there was no recurrence after steroid tapering.

Three interesting points can be made. Firstly, the drug had a profound effect on ocular BD as well as on the other manifestations of disease. This effect on global diseases seems to be remarkable, as standard treatments had failed in our patient. Secondly, the onset of improvement was fast. Thirdly, when a loading dose regimen of four infusions (weeks 0, 2, 6, and 8) was used, remission continued for up to eight weeks. Further confirmation of the beneficial effects of TNFα blockade in randomised, controlled, double blind studies is necessary.

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Is hirudin a potential therapeutic agent for arthritis?

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A recent pilot study by Michalsen *et al* showed that a single brief treatment with medicinal leeches (*Hirudo medicinalis*) can give relatively long term relief from pain in osteoarthritic joints. A number of leech salivary components are known, which may contribute to this effect.[1] Although there was no evidence for any therapeutic outcomes, other than pain relief, the extended timescale suggests that one or more leech components may exert more than an anaesthetic or analgesic effect. Independent evidence indicates that the leech anticoagulant protein, hirudin, may make a significant contribution to this phenomenon.

A synovial stimulatory protein (SSP), acting as an autoantigen to which T lymphocytes from patients with rheumatoid arthritis respond, has been identified in synovial fluid.[2] A smaller protein, derived from human fibroblasts, and identifiable from its amino acid sequence as a fragment of the SSP, has been found to bind to a hirudin-agarose affinity chromatography matrix.[3] More recently, we have shown that both the SSP and its smaller derivative, now known as the DING protein, are found in synovial fluid samples and synovial fibroblasts from normal subjects, and from patients with a range of arthritic conditions, including rheumatoid and osteoarthritis. The proteins act as autocrine growth stimulators for normal and arthritic synovial fibroblasts.[4] The presence of hirudin can inhibit this stimulation.[3] Given that hyperproliferation of synovial fibroblasts is believed to contribute to the formation of the destructive pannus that is characteristic of some arthritic joints,[5] the SSP and DING protein may act to promote this process, and hirudin may have the potential to retard it. Hirudin might thus have value in treating arthritis. Recombinant hirudin has already been used in a range of therapeutic anticoagulant applications,[6–8] so patient safety and other clinical data have been collected and evaluated. A trial of hirudin in an antiarthritis role may now be appropriate.

The first DING protein isolates displayed proteolytic activity, and its inhibition was believed to be the basis of the action of hirudin, but subsequent DING preparations have had little or no proteolytic activity.[3 4] The basis of the inhibitory action of hirudin is thus not known. Peptides derived from hirudin such as hirulog (bivalirudin), which are effective anticoagulants by virtue of thrombin inhibition,[9 10] may not possess the ability to bind and inhibit the SSP or DING proteins.

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Steroid induced psychosis in systemic lupus erythematosus: a possible role of serum albumin level

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Steroids may have diverse and sometimes severe adverse effects in the short and long term.[1] We present three patients with systemic lupus erythematosus (SLE)[2] and steroid induced psychosis (table 1), emphasising the importance that serum albumin levels may have on the development of this complication.

CASE REPORTS

Case 1

Patient No 1 is a 20 year old woman with SLE diagnosed five years ago, in whom a serum albumin level of 24 g/l and proteinuria of 3.2 g/l were detected in routine tests. Diffuse proliferative lupus nephritis was diagnosed by renal biopsy and she was treated with one pulse of cyclophosphamide (500 mg) and oral prednisone (60 mg/day). Three days later she developed anxiety, insomnia, euphoria, verbosity, grandiosity, and megalomaniac ideas. She was treated with oral risperidone (2 mg/12 h), oral clonazepam (0.5 mg/12 h), and the prednisone dosage was progressively tapered. Over the next 15 days she experienced a fluctuating but progressive improvement until she became psychiatrically asymptomatic. Five years previously, when she was first diagnosed as having SLE, she had been treated with oral prednisone (60 mg/day) but had not had any psychiatric symptoms. At that time, however, she had serum albumin levels of 33 g/l without proteinuria.

Case 2

Patient No 2, a 21 year old woman who was diagnosed as having SLE, with cutaneous, articular and renal involvement, started treatment with oral prednisone (30 mg/day). At that time she had a serum albumin level of 30.2 g/l and proteinuria of 2.37 g/day. Renal biopsy was refused by the patient. Over the following days and in a progressive manner, she developed mania, with euphoria, disinhibition as well as ideas of grandiosity. All these manifestations disappeared under psychiatric supervision and when steroids were discontinued.

Case 3

Patient No 3 is a 36 year old woman who had been diagnosed as having SLE with diffuse proliferative lupus nephritis seven years before. She had started oral prednisone (60 mg/day), without adverse psychiatric effects. At that time, she had serum total protein level of 66 g/l and a serum albumin level of 43 g/l. She currently presented with an articular "flare" of her lupus, and started treatment with oral prednisone (30 mg/day). Her total protein level was 59 g/l, the serum albumin level fell to 29 g/l with proteinuria of 1.2 g/l. Seven days later, she developed anxiety, insomnia, and hyperactivity that disappeared over the following few days after reduction of the dose of prednisone to 2.5 mg/day.

DISCUSSION

Steroid induced psychiatric disturbances appear in 3–6% of the patients who are treated with these drugs.[3–6] The differential diagnosis with lupus psychosis[7] is difficult. In case of doubt, some authors advocate increasing the dose of steroids and awaiting a clinical response over the next days. Others advocate rapid tapering and stopping steroids in order to eliminate a drug induced adverse event.

Our three patients developed psychiatric symptoms while receiving steroids for lupus nephritis with hypoalbuminaemia and significative proteinuria. Moreover, it seems relevant that

Table 1 Main clinical features of three patients with SLE and steroid induced psychosis

	Patient 1	Patient 2	Patient 3
Sex	Female	Female	Female
Age	20	21	36
Years after SLE diagnosis	5	Present diagnosis	7
Treatment at SLE diagnosis	Prednisone 60 mg/day	See present diagnosis	Prednisone 60 mg/day
Serum albumin at SLE diagnosis (g/l)	33	See present diagnosis	43
Psychiatric manifestations at SLE diagnosis	No	See present diagnosis	No
Present diagnosis	Lupus nephritis	Lupus nephritis	Articular and cutaneous flare
Serum albumin at present diagnosis (g/l)	24	30	29
Proteinuria at present diagnosis (g/day)	3.2	2.37	1.2
Treatment of present diagnosis	Prednisone 60 mg/day	Prednisone 30 mg/day	Prednisone 30 mg/day
Psychiatric manifestations at present diagnosis	Yes	Yes	Yes