Figure 1 Course of serum levels of leptin (A) and adiponectin (B) in patients with RA with (black symbols) and without (white symbols) prednisolone treatment. A comparison of the two groups in (B) was carried out using the general linear model (GLM) statistical technique. The Friedman test indicated no significant change during the course of adalimumab treatment. The dashed lines indicate lower and upper limits of the normal range in women. Data are given as means (SEM).

Conflict of interest: None.

Correspondence to: Professor R H Straub, rainer.straub@klinik.uni-regensburg.de

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Mycophenolate mofetil for lupus related myelopathy

C C Mok, A Mak, C H To

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Myelopathy is a rare manifestation of systemic lupus erythematosus (SLE). The standard treatment consists of high dose corticosteroids and intravenous pulse cyclophosphamide (CYC).^{1,2} Despite this, our previous experience indicated that half of the patients with lupus related myelopathy did not respond completely to CYC treatment.³ Moreover, toxicities of CYC are of major concern, particularly severe infections and ovarian failure.⁴ Therefore, less toxic or more effective alternative treatments are needed.

Mycophenolate mofetil (MMF) is a relatively new immunosuppressive agent that has increasingly been used in patients with SLE because of its favourable efficacy and safety.⁵ Controlled trials have confirmed its efficacy in the induction and maintenance treatment of proliferative lupus nephritis.^{6,7} MMF has also been reported to be useful in

refractory multiple sclerosis.⁸ However, information about the efficacy of MMF in neuropsychiatric SLE is scant. We here report our preliminary experience of the use of combined corticosteroid and MMF in the treatment of lupus related myelopathy.

Three patients who fulfilled the 1982 American College of Rheumatology criteria for SLE and had acute myelopathy were treated with a protocol consisting of high dose corticosteroids (daily intravenous methylprednisolone pulses (15 mg/kg) for 3 days, followed by oral prednisolone 0.6 mg/kg/day for 6 weeks, then tapered by 5 mg/week until <10 mg/day) and MMF (2 g/day for 6 months, followed by 1 g/day in two divided doses). Intravenous immunoglobulin for one course (5 days of 0.4 g/kg) could be given as rescue treatment if the response was suboptimal. Rehabilitative

Table 1 Clinical characteristics and outcome of the three female patients studied

Patient No	Age (years)	SLE duration (years)	Previous treatments	aPL	CSF findings	MRI findings	Treatment response and outcome	Adverse effects
1	51	8	Pred, HCQ, CYC (myelopathy + refractory to CYC)	+	Lymphocytic pleocytosis ↑ in protein	Normal (brain) Multiple T ₂ hyperdense signals at thoracic and lumbar cord	Partial response with residual weakness and urge incontinence. Relapse at 8 months and responded partially to pulse CYC	Nil
2	39	0	Nil	-	Lymphocytic pleocytosis ↑ in protein ↓ in sugar	Normal (brain) Longitudinal T ₂ hyperdense signal spanning from C3 to C8 level (cord)	Partial response after 6 weeks. Relapse at 5 months and responded partially to pulse CYC	One episode of UTI
3	27	2	Pred, HCQ, CSA	-	Lymphocytic pleocytosis ↑ in protein ↓ in sugar Oligodonal IgG band +ve	Normal (brain, brainstem and spinal cord)	Complete response after 3.5 weeks. Remained in remission at 12 months	One episode of herpes zoster at month 2

SLE, systemic lupus erythematosus; aPL, antiphospholipid antibodies (positive for either the anticardiolipin antibody or the lupus anticoagulant on two occasions more than 6 weeks apart); CSF, cerebrospinal fluid; MRI, magnetic resonance imaging; Pred, prednisolone; HCQ, hydroxychloroquine; CYC, cyclophosphamide; CSA, cyclosporin A; UTI, urinary tract infection.

Table 2 Clinical response of patients with lupus related myelopathy

Clinical response	At presentation	3 Months after treatment
<i>Modified Barthel index (0–100)</i>		
Patient 1	54	85
Patient 2	30	94
Patient 3	40	100
<i>EDSS (0–10)</i>		
Patient 1	6.5	3.5
Patient 2	8.5	2.5
Patient 3	8.0	0
<i>Lower limb muscle strength (grade 0–5)</i>		
Patient 1	R: 3; L: 3	R: 4; L: 4
Patient 2	R: 0; L: 2	R: 5; L: 5
Patient 3	R: 2; L: 2	R: 5; L: 5
<i>Urinary bladder function</i>		
Patient 1	Catheter dependent	Mild urge incontinence
Patient 2	Catheter dependent	Post-voiding RU: <50 ml
Patient 3	Catheter dependent	Normal

EDSS, expanded disability status scale; R, right; L, left; RU, residual urine.

support was also provided. Patients were followed up to determine any relapse of myelitis and adverse events related to drug treatment. Muscle strength was measured by the Medical Research Council grades (0–5). Functional status was assessed by the modified Barthel index (for activity of daily living, score 0–100)⁹ and the expanded disability status scale used in patients with multiple sclerosis (score 0–10).¹⁰

Table 1 shows the clinical characteristics of our patients. All were women and their mean age was 39 years. One patient had previously been refractory to CYC while the other two were reluctant to receive CYC because of the worry about toxicities. Table 2 shows the functional status of the patients before and after treatment for 3 months. Two patients responded partially despite the addition of intravenous immunoglobulin, while one had complete clinical recovery. While receiving maintenance treatment with low dose prednisolone and MMF, two patients had a relapse of myelitis that subsequently responded partially to pulse methylprednisolone and CYC. No patients developed leucopenia or gastrointestinal intolerance to MMF.

Our experience indicates that although MMF is well tolerated, its efficacy in lupus myelopathy is only modest. Two of our three patients responded partially and their myelopathy relapsed while receiving MMF maintenance treatment. Although complete neurological recovery of myelopathy has not been universally reported with conventional CYC treatment,^{1,2} controlled trials are needed to compare the relative efficacy of CYC and MMF in this condition. Currently, MMF for lupus myelopathy should be restricted to those who are refractory/intolerant to, or reluctant to receive, CYC.

Authors' affiliations

C C Mok, A Mak, C H To, Department of Medicine, Tuen Mun Hospital, Hong Kong SAR, China

Correspondence to: Dr C C Mok, ccmok2005@yahoo.com

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Cervical spine involvement is rare in early arthritis

I C van Eijk, M M J Nielen, R M van Soesbergen, H L Hamburger, P J S M Kerstens, B A C Dijkmans, D van Schaardenburg

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Chronic inflammatory arthritis may cause subluxation of the cervical spine.^{1,2} Risk factors for this complication include the presence of rheumatoid factor and severe peripheral joint disease.^{3–7}

The reported prevalence of cervical involvement in patients with rheumatoid arthritis (RA) varies widely from 17% to 88%.^{7–9} In early RA^{5,6,10} cervical involvement is much less common, and a recent trial suggested that it might be further reduced with the use of early aggressive treatment for RA.⁵ The present cross sectional study assesses the prevalence and clinical significance of cervical spine involvement as encountered in our early arthritis clinic, which includes patients with peripheral arthritis of two or more joints and <3 years of symptom duration. Consecutive patients attending either the 2 or 5 year follow up visit were divided into a group with RA according to the 1987 American College of Rheumatology criteria and a group with other arthritides (undifferentiated oligo- or polyarthritis and psoriatic arthritis). Lateral view cervical spine radiographs were taken during full flexion and extension as well as high and low anteroposterior radiographs.

Significant cervical spine involvement was defined as one or more of the following: (a) anterior atlantoaxial subluxation (aAAS)—a distance between the anterior aspect of the dens and the posterior aspect of the anterior arch of the atlas of >3 mm; (b) vertical subluxation (VS)—the cranial tip of the dens above the virtual line between the posterior hard palate and the base of the occiput (McGregor line); (c) subaxial subluxation (SAS)—displacement of a vertebra of >3 mm in relation to the next vertebra, measured from the posterior line of the vertebral bodies. Patients with significant cervical spine involvement were evaluated by a neurologist.

Of a total of 258 patients (160 with RA, 74 undifferentiated arthritis, 24 psoriatic arthritis), seven had significant cervical spine involvement (table 1). aAAS occurred in only 3% in the subgroup with RA. Of the six patients with aAAS (range 4–13 mm), aAAS was unstable in five cases. VS did not occur and SAS only once. Six of the seven (86%) patients with cervical spine involvement were treated with more than one disease modifying antirheumatic drug (DMARD) during follow up and two of these patients used combination DMARD therapy. Three out of seven reported non-specific neck pain.

Our data are in accordance with previous data in early RA, which suggest that the prevalence of cervical spine involvement in early RA is declining.^{5,6,10} The patients who did have

cervical spine involvement tended to have more severe disease than those in whom the cervical spine was not affected, as shown by the higher prevalence in these patients of peripheral erosions and of rheumatoid factor positivity (data not shown). Neurological signs or symptoms were not found. Therefore, even when radiological cervical spine involvement is present, this does not mean that neurological complications will occur.

In conclusion, this study suggests there is no need for routine screening for cervical spine involvement in the first 5 years of chronic arthritis. Cervical spine radiography can be restricted to patients with symptoms or signs indicative of the disease.

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Authors' affiliations

I C van Eijk, M M J Nielen, R M van Soesbergen, P J S M Kerstens, B A C Dijkmans, D van Schaardenburg, Department of Rheumatology, Jan van Breemen Institute, Amsterdam, The Netherlands
H L Hamburger, Department of Neurology, Jan van Breemen Institute and Slotervaart Hospital, Amsterdam, The Netherlands
B A C Dijkmans, D van Schaardenburg, Department of Rheumatology, VU University Medical Centre, Amsterdam, The Netherlands

Correspondence to: Dr D van Schaardenburg, Jan van Breemenstraat 2, 1056 AB Amsterdam; d.v.schaardenburg@janvanbreemen.nl

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Table 1 Cervical spine involvement in patients in the 2 and 5 year follow up groups

	2 Year RA (n = 99)	2 Year non-RA (n = 47)	5 Year RA (n = 61)	5 Year non-RA (n = 51)
Disorder	No (%)	No (%)	No (%)	No (%)
aAAS				
>3 mm	3 (3.0)	2 (4.3)	1 (1.6)	0
SAS				
>3 mm	1 (1.0)	0	0	0
VS	0	0	0	0

aAAS, anterior atlantoaxial subluxation; SAS, subaxial subluxation; VS, vertical subluxation.