maintaining remission (REM) or low disease activity (LDA) via tight medical control¹⁾. However, despite remarkable advances in medication, progressive deterioration and deformity of the forefoot sometimes occur if adequate medication is not administered in the early stage. Surgical reconstruction is still required in patients with painful callosity and footwear problems caused by typical forefoot deformity. Recently, patients have expressed a desire to achieve functional REM with a higher quality of life (QOL) and improved mental wellness.

Objectives: The objective of this study was to clarify the systemic effects of forefoot reconstruction on the impaired foot, even in patients who have achieved REM or LDA.

Methods: A prospective cohort study was performed for 63 feet of 50 patients (males: 6, females: 44) with RA who underwent primary elective surgery between October 2012 and September 2014. Both feet underwent surgery on the same day in 13 patients. The average (range) age was 64 (42–89) years, and the average (range) disease duration was 20 (2–36) years. The procedures performed included shortening oblique osteotomy at the metatarsal neck of the lesser toes in 47 feet, first metatarsophalangeal joint arthroplasty (Swanson) in 44 feet, correction shortening osteotomy (modified Mitchell) at the first metatarsal in 4 feet, and fusion at the first interphalangeal joint in 7 feet, among others. A total of 30 feet in 27 patients (males: 5, females: 22) had a disease activity of REM or LDA just before surgery. The patient-reported outcomes (PROs) were assessed using the Health Assessment Questionnaire-Disability Index (HAQ-DI), EuroQoL-5 Dimensions (EQ-5D), Beck Depression Inventory-II (BDI-II), and Patient's General Health using a visual analogue scale of 100 mm (Pt-GH). The 28-joint Disease Activity Score using C reactive protein (DAS28-CRP), the Japanese Society of Surgery of the Foot (JSSF) standard rating system (JSSF) for the RA foot and ankle scale²⁾, and the Time Up&Go test (TUG) were also evaluated. All of these items were investigated just before surgery (baseline) and again at 6 and 12 months after surgery.

Results: Overall, the physical function (JSSF, TUG), QOL (EQ-5D), and mental wellness (depression) (BDI-II) were significantly improved at 6 and 12 months after surgery compared to the baseline values ($p < 0.05$). In the REM/LDA group, significant improvement was noted in the physical function (JSSF), QOL (EQ-5D) both at 6 and 12 months after surgery; however, we did not observe any significant changes in the Pt-GH or DAS28-CRP (Table 1).

Table 1: Outcome of surgical intervention in the deformed forefoot for the patients with rheumatoid arthritis

		HAQ-DI	EQ-5D	BDI-II	Pt-GH (mm)	DAS28-CRP	JSSF	TUG (sec)
Total n=50	baseline	0.98 (0.77)	0.71 (0.11)	11.7 (8.2)	30.4 (22.9)	2.63 (1.1)	61.9 (16.4)	10.0 (4.0)
	PO# 6mos.	1.01 (0.8)	0.75* (0.13)	9.9* (7.0)	25 (20.9)	2.43 (0.92)	78.7** (14.7)	9.2* (3.0)
	PO# 12mos	1.04 (0.71)	0.76* (0.15)	9.7* (6.9)	25.4 (19.7)	2.40 (0.89)	78.2** (14.3)	9.3* (3.0)
REM+LDA n=27	baseline	0.78 (0.66)	0.73 (0.13)	10.3 (7.8)	18.9 (18.6)	1.85 (0.49)	68.0** (15.4)	8.6 (2.4)
	PO# 6mos.	0.81 (0.65)	0.80* (0.13)	8.1* (6.3)	19.5 (16.7)	2.0 (0.60)	82.8** (11.5)	8.4* (2.0)
	PO# 12mos	0.89 (0.66)	0.80* (0.16)	8.7 (7.6)	19.4 (16.1)	2.0 (0.57)	81.4** (11.8)	8.4 (2.5)

Mean(SD) *: $p < 0.05$ compared to baseline, **: $p < 0.01$ compared to baseline

Conclusions: Achieving REM or LDA is not the ultimate goal of treatment for patients with painful callosity and footwear problem functional loss. A higher QOL and improved function can be achieved by surgical intervention in the deformed forefoot.

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AB0372 ASSOCIATED FACTORS OF CERVICAL AND LUMBAR SPINAL INSTABILITY IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: Few studies have compared rheumatoid arthritis (RA)-related disorders of the cervical and lumbar spine.

Objectives: The objectives of this study were to examine the prevalence of and risk factors for cervical and lumbar spinal instability in patients with RA.

Methods: From a total of 1,843 patients registered in the Akita Orthopedic Group on Rheumatoid Arthritis (AORA), 135 patients [118 women, 17 men; mean age, 66 (41–84) years; mean disease duration, 14 (1–63) years] who underwent a radiographic examination were enrolled in this study. In the cervical spine, we defined instability as one of the following characteristics: (1) atlantodental interval (ADI) > 3 mm, (2) Ranawat value < 13 mm on a neutral plain radiograph, or (3) anteroposterior translation > 3 mm at the subaxial cervical spine on an anteroposterior bending plain radiograph. In the lumbar spine, instability was defined as anteroposterior translation > 3 mm on a neutral plain radiograph.

At the time of radiographs evaluation, demographic characteristics, clinical variables, medical history and current medications were investigated.

The patients were classified into two groups: with both cervical and lumbar spinal instabilities and without. The independent risk factors for both cervical and lumbar spinal instabilities were then determined using multivariate logistic regression analysis.

Results: Forty-six (34.1%) patients exhibited cervical spinal instability, and 50 (37.0%) patients exhibited lumbar spinal instability. Twenty-four patients (17.8%) exhibited both cervical and lumbar spinal instability. The presence of both cervical and lumbar spinal instability was significantly and independently associated with disease duration (OR: 1.06; 95% CI: 1.01–1.12).

Conclusions: The prevalence of both cervical and lumbar spinal instability in patients with RA was 17.8%. Disease duration was independent risk factor for presence of both cervical and lumbar spinal instability in this study.

Disclosure of Interest: None declared

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AB0373 ANALYSIS OF RISK FACTOR FOR LOCOMOTIVE SYNDROME IN PATIENTS WITH RHEUMATOID ARTHRITIS: DATA FROM CHIKARA STUDY

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Background: Patients with rheumatoid arthritis (RA) are at a higher risk for sarcopenia due to joint destruction and chronic inflammation*1, which can lead to locomotive syndrome (LS), i.e., being restricted in the ability to walk or lead a normal life owing to a dysfunction in one or more of the parts of the musculoskeletal system*2. The prospective observational CHIKARA study (Correlation research of sarcopenia, skeletal muscle and disease activity in rheumatoid arthritis; registration number UMIN000023744) was begun in 2016 to investigate the correlation between RA disease activity and sarcopenia and LS.

Objectives: We investigated the relationship between LS and disease activity at baseline in patients with RA.

Methods: One hundred patients (78% women; average age, 66y) enrolled in the CHIKARA study were examined for body weight, muscle mass, fat mass, predicted bone mass, basal metabolic rate (BMR), leg muscle score, etc., using a body composition analyzer. Laboratory data, disease activity, Health Assessment Questionnaire (HAQ) and treatment were also investigated. LS was diagnosed using a questionnaire called Locomo-5. We investigated the correlation between LS and each status using univariate and multivariate analyses.

Results: Fifty-two percent of the patients with RA that we examined had LS. Mean disease duration was 5.5 years and mean DAS28-ESR was 3.55. Table 1 shows the risk factors for LS. Univariate analysis showed that age, percent body fat, body weight, visceral fat rating, leg muscles score, rheumatoid factor status and HAQ had significant associations to LS. Leg muscle score and HAQ were detected as significant factors by multivariate analysis. Patients whose leg muscle score was less than 90 had a significantly higher prevalence of LS by ROC curve analysis (Odds ratio 3.77, $p = 0.001$). Disease activity and use of glucocorticoids or biological agents showed no significant relationship.

Table 1. Risk factors for locomotive syndrome in patients with rheumatoid arthritis

	Univariate		Multivariate		
	R	p value	Odds ratio	95% Confidence Interval	P value
Age, y	0.255	0.01	—	—	—
% body fat	0.244	0.014	—	—	—
% body water	-0.215	0.032	—	—	—
Visceral fat rating	0.205	0.041	—	—	—
Leg muscle score	-0.359	< 0.001	0.91	0.84–0.97	0.005
Rheumatoid factor	0.221	0.027	—	—	—
Health Assessment Questionnaire	0.460	< 0.001	8.78	2.66–29.0	0.001

Conclusions: Lower leg muscle score and higher HAQ score are independent risk factors for LS among patients with RA.

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