

ONLINE SUPPLEMENTARY DATA

SUPPLEMENTARY TABLE 1: RELIABILITY OF MRI READINGS IN ARCTIC. INTRA-CLASS CORRELATIONS, TWO-WAY MIXED-EFFECTS MODEL, ABSOLUTE AGREEMENT

Inter-reader	Baseline	1 year	Change
Synovitis	0.98	0.96	0.87
Tenosynovitis	0.97	0.94	0.90
Bone marrow edema	0.96	0.95	0.94
Erosion	0.92	0.97	0.94
JSN	0.60	0.43	0.61
Intra-reader	Baseline	1 year	Change
Synovitis	0.95	0.98	0.88
Tenosynovitis	0.94	0.97	0.88
Bone marrow edema	0.89	0.97	0.86
Erosion	0.98	0.95	0.81
JSN	0.93	0.92	0.95

Inter-reader comparisons: 12 patients scored separately by D.Glinatsi and U.Sundin. Intra-reader comparisons: 12 patients scored on separate occasions by U.Sundin.

SUPPLEMENTARY TABLE 2: BASELINE CHARACTERISTICS

	Derivation Cohort*	Validation Cohort**	p-value	CIMESTRA	OPERA
<i>N</i>	194	195		123	72
<i>Age at baseline, median (IQR)</i>	53 (42, 62)	53 (41, 62)	0.92	53 (42, 62)	54 (41, 62)
<i>Female Sex, n (%)</i>	121 (62.4%)	129 (66.2%)	0.44	84 (68.3%)	45 (62.5%)
<i>Symptom Duration (days), median (IQR)</i>	166.5 (85, 311)	91 (56, 133)	<0.001	98 (77, 147)	66.5 (42, 119)
<i>Pos. anti CCP Status, n (%)</i>	159 (82.0%)	120 (61.5%)	<0.001	73 (59.3%)	47 (65.3%)
<i>TJC28, median (IQR)</i>	6 (2, 11)	10 (6, 16)	<0.001	9 (5, 16)	10.5 (6.5, 16.5)
<i>SJC28, median (IQR)</i>	5 (3, 10)	8 (4, 12)	<0.001	9 (4, 12)	7 (4, 12)
<i>Patient global, median (IQR)</i>	48 (29, 67)	54 (31, 74)	0.025	51 (29, 72)	57.5 (41.5, 77)
<i>Physician global, median (IQR)</i>	35 (23, 50)	57 (41, 68)	<0.001	58 (41, 68)	55 (41.5, 69)
<i>Joint pain VAS, median (IQR)</i>	45 (27, 65)	50 (31, 70)	0.074	48 (28, 70)	52 (37, 73)
<i>CRP, median (IQR)</i>	7 (3, 18)	18.3 (8, 40)	<0.001	19.6 (9, 41)	15 (7, 38)
<i>DAS28, median (IQR)</i>	4.4 (3.6, 5.0)	5.3 (4.6, 5.9)	<0.001	5.2 (4.5, 5.9)	5.45 (4.8, 6)

**Derivation cohort: ARCTIC. **Validation cohort: CIMESTRA+OPERA. P-value: Probability of no difference between cohorts, tested by Wilcoxon rank-sum test for median values, and by Pearson's chi-square for proportions. Abbreviations: Anti CCP: anti-cyclic citrullinated peptide. CRP: C-Reactive Protein (mg/L). DAS: Disease Activity Score (28-joints, range 0-10). SJC: Swollen Joint Count (28 joints). TJC: Tender Joint Count (28 joints). VAS: Visual Analog Scale (0-100).*

SUPPLEMENTARY TABLE 3A: BASELINE CONVENTIONAL RADIOGRAPHY (CR) AND MRI SCORES, MEDIAN VALUES (IQR)

	Derivation Cohort*	Validation Cohort**	p-value	CIMESTRA	OPERA
<i>N</i>	194	195		123	72
<i>RAMRIS Synovitis</i>	5 (3, 9)	8 (5.5, 11)	<0.001	8 (5, 11)	9 (6, 12)
<i>RAMRIS Tenosynovitis</i>	4 (2, 10)	4.5 (2, 11)	0.92	3 (1, 8)	9 (4, 14)
<i>RAMRIS Bone marrow edema</i>	1 (0, 5)	0 (0, 2)	<0.001	0 (0, 2)	0 (0, 3)
<i>RAMRIS Erosion</i>	1 (0, 3)	2 (0, 3)	0.98	1 (0, 3)	2 (1, 4)
<i>RAMRIS JSN</i>	15 (10, 20)	0 (0, 0)	<0.001	0 (0, 0)	0 (0, 0)
<i>CR Erosion</i>	3 (1, 5)	1 (0, 4)	<0.001	1 (0, 6)	1 (0, 2)
<i>CR JSN</i>	1 (0, 3.5)	0 (0, 3)	0.01	0 (0, 3)	2 (0, 3.5)
<i>CR Total</i>	4.5 (1.5, 9)	3 (0, 7)	<0.001	3 (0, 8)	3 (1, 6)

SUPPLEMENTARY TABLE 3B: 1 YEAR CHANGE IN CR AND MRI SCORES, MEDIAN VALUES (IQR)					
	Derivation Cohort*	Validation Cohort**	p-value	CIMESTRA	OPERA
<i>N</i>	194	195		123	72
<i>RAMRIS Synovitis</i>	-2 (-5, 0)	-2 (-5, 0)	0.82	-2.5 (-5, 0)	-2.5 (-4, 0.5)
<i>RAMRIS Tenosynovitis</i>	-3 (-7, 0)	-3 (-8, 0)	0.97	-2 (-6, 0)	-5 (-10, -1)
<i>RAMRIS Bone marrow edema</i>	0 (-2, 0)	0 (-1, 0)	0.36	0 (-1, 0)	0 (-2, 0)
<i>RAMRIS Erosion</i>	0 (0, 1)	0 (0, 1)	0.32	0 (0, 1)	0 (0, 1)
<i>RAMRIS JSN</i>	0 (0, 1)	0 (0, 0)	0.011	0 (0, 0)	0 (0, 0)
<i>CR Erosion</i>	0.5 (0, 1)	0 (0, 0)	<0.001	0 (0, 0)	0 (0, 1)
<i>CR JSN</i>	0 (0, 0)	0 (0, 0)	0.003	0 (0, 0)	0 (0, 0)
<i>CR Total</i>	0.5 (0, 1.5)	0 (0, 1)	<0.001	0 (0, 0)	0 (-0.5, 1)
*Derivation cohort: ARCTIC. **Validation cohort: CIMESTRA+OPERA. P-value: Probability of no difference between cohorts, tested by Wilcoxon rank-sum test.					