

## CONTEXT

Patients with early Inflammatory Arthritis (IA) initially consult with primary care family physicians (FPs). There is evidence that recognition of EIA and the consequent referral in rheumatology are too often delayed. The importance of early management of IA by rheumatologists is well established.

## OBJECTIVE

Evaluate the impact of a hands-on educational program about inflammatory arthritis (IA) directed to FPs aiming at early recognition and referral of IA patients to an academic rheumatology center.

## METHODS

➤ **Intervention:** The **PRADA** (*Programme de reconnaissance et acheminement rapide de patients avec arthrite*) educational activity consisted in a mixed theoretic and practical "hands on" 3 hours workshop. Real patients presenting different IA conditions (RA, SpA, etc) served as models for teaching and physical examination. At the end of each workshop, physicians were advised to use a practice enabler: a standard referral form (SRF) for suspected IA.

➤ **Participants:** 13 regional primary care clinics joined the program with a total participation of 154 FPs.

### ➤ Outcome measures:

**Primary:** Clinical validation of IA (polyarthritis) by the rheumatologist.

**Secondary:** Pertinence of the complementary workup. **Complete** was defined by ANA + RF + inflammatory markers, and **Very complete** was defined by ANA + RF + anti-CCP + inflammatory markers + X-Ray.

➤ Three groups of referrals were compared:

1. Trained FPs who used SRF
2. Trained FPs who did not use SRF
3. FPs that did not attend PRADA workshops (Controls)

➤ Chi-square and Fisher exact test were used to compare proportions. Multivariate logistic regressions with stepwise selection for IA were performed. A p-value <0.05 was considered significant.

## RESULTS

**Table 1. Characteristics of trained family physicians**

	Use of SRF (n=32)	IA confirmed (n=52)	Paraclinical workup Complete (n=32)	Very complete (n=28)
Gender of FP				
Women (n=45)	22 (48.9)	30 (66.7)	28 (62.2)	18 (40.0)
Men (n=28)	10 (35.7)	22 (78.6)	13 (46.4)	10 (35.7)
Years of clinical practice				
≤ 10 years (n=54)	22 (40.7)	41 (75.9)	30 (55.6)	23 (42.6)
> 10 years (n=12)	7 (58.3)	6 (50.0)	7 (58.3)	4 (33.3)

73 of the 154 trained family physicians actually referred patients over the study period. No significant differences between groups.

**Table 2. Confirmed inflammatory polyarthritis and categorisation of paraclinical workup according to training**

	Trained FPs			Controls <sup>a</sup> (n=151)
	With SRF (n=32)	Without SRF (n=42)	Total (n=73)	
Inflammatory arthritis	23 (71.9)	29 (70.7)	<b>52 (71.2)</b>	<b>86 (57.0)</b> *
Categorisation of paraclinical workup				
None provided	0 (0.0)	2 (4.9)	2 (2.7)	28 (23.7)
Incomplete	7 (21.9)	23 (56.1)	30 (41.1)	48 (40.7)
Complete or very complete	25 (78.1)	16 (39.0) †	41 (56.2)	42 (35.6) ***
Very complete	19 (59.4)	9 (22.0) ‡	28 (38.4)	4 (3.4) ***

Comparisons between Trained FPs and controls: \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Comparisons between Trained FPs with and without SRF: † p<0.05, ‡ p<0.01, ‡ p<0.001

<sup>a</sup> n=118 for paraclinical workup in controls group.

**Table 3. Categories of paraclinical information according to confirmation of inflammatory polyarthritis**

Trained FPs (n=73)	no IA (n=21)	IA (n=52)
Complete or very complete	<b>8 (38.1)</b>	<b>33 (63.5)</b> *
Very complete	<b>6 (28.6)</b>	<b>22 (42.3)</b> *
Trained FPs with SRF (n=32)	(n=9)	(n=23)
Complete or very complete	7 (77.8)	18 (78.3)
Very complete	6 (66.7)	13 (56.5)
Trained FPs without SRF (n=41)	(n=12)	(n=29)
Complete or very complete	1 (8.3)	15 (51.7) *
Very complete	0 (0.0)	9 (31.0) *
Controls (n=118)	(n=46)	(n=72)
Complete or very complete	14 (30.4)	28 (38.9)
Very complete	1 (2.2)	3 (4.2)

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

**Table 4. FPs describing morning stiffness and synovitis according to confirmation of IA by rheumatologists**

Trained FPs (n=73)	no IA (n=21)	IA (n=52)
FP describing morning stiffness		
Negative description	0 (0.0)	2 (3.8)
Positive description	8 (38.1)	33 (63.5)
No description	13 (61.9)	17 (32.7)
FP describing synovitis		
Negative description	2 (9.5)	2 (3.8)
Positive description	<b>15 (71.4)</b>	<b>40 (76.9)</b>
No description	4 (19.0)	10 (19.2)

No significant differences.

**Table 5. Paraclinical workup according to IA**

Trained FPs (n=73)	no IA (n=21)	IA (n=52)
Paraclinical workup		
Reported	21 (100.0)	50 (96.2)
Suggestive of inflammation	12 (57.1)	38 (73.1)
Rheumatoid factor		
Reported	15 (71.4)	47 (90.4)
Positive	8 (38.1)	16 (30.8)
ANA		
Reported	12 (57.1)	36 (69.2)
Positive	4 (19.0)	6 (11.5)
Anti-CCP		
Reported	5 (23.8)	21 (40.4)
Positive	0 (0.0)	4 (7.7)
Inflammatory markers		
Reported	18 (85.7)	48 (92.3)
Positive	4 (19.0)	27 (51.9) *
X-Rays		
Reported	11 (52.4)	30 (57.7)
Positive	2 (9.5)	5 (9.6)

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

**Table 6. Multivariate logistic regression for IA**

	OR (95% CI)
Trained FPs model (n=66)	
Inflammatory markers positive	<b>6.1 (1.6-23.6) **</b>
All subjects (n=190)	
Paraclinical workup at least complete	<b>2.0 (1.1-3.7) *</b>

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

## STANDARD REFERRAL FORM

MUSCULOSKELETAL PAIN REFERRAL FORM

Date: \_\_\_\_\_ Physician: \_\_\_\_\_

Check the symptoms / signs that best apply to your patient's condition. If pertinent, use this space to describe additional relevant information.

Articular pain:  Inflammatory,  Mechanical pain, degenerative disease (e.g. osteoarthritis: hands, knees, spine),  Periarticular pain (e.g. bursitis, tendinitis),  Widespread pain (diffuse muscular bone pain),  Suspected PMR, shoulder hip inflammatory pain (patient > 50 y.o.),  Back pain,  Neck pain,  Mechanical.

Duration:  < 6 weeks,  > 6 weeks and < 3 months,  > 3 months.

Morning stiffness:  < 45 min,  > 45 min. Swollen joints?  yes,  no. Recent infection?  yes,  no. Family history of arthritis / related conditions?  yes,  no.

Creative tissue disease symptoms/signs:  no (reported or family 1° degree).  Rheumatoid,  Psoriasis,  Scleroderma,  Sjögren's,  Myositis,  Dermatomyositis,  Sarcoidosis,  Vasculitis,  Systemic sclerosis,  Hemolytic anemia,  Kidney stones,  Kidney failure,  Liver disease,  Lung disease,  Heart disease,  Diabetes,  Hypertension,  Thyroid disease,  Autoimmune disease,  Inflammatory bowel disease,  HIV / AIDS,  Inflammatory back and/or neck pain / AS.

Spinal base therapy symptoms/signs:  no (reported or family 1° degree).  Psoriasis,  Crohn's / ulcerative colitis,  SJD / dermatitis,  Inflammatory back and/or neck pain / AS.

Laboratory: RF: \_\_\_\_\_ titre: \_\_\_\_\_ anti-CCP: \_\_\_\_\_ ANA: \_\_\_\_\_ titre: \_\_\_\_\_ pattern: \_\_\_\_\_ HLA-B27: \_\_\_\_\_ CRP: \_\_\_\_\_ ESR: \_\_\_\_\_

Radiology: Hands: \_\_\_\_\_ Feet: \_\_\_\_\_ Other: \_\_\_\_\_

Service de rhumatologie CHUS/Érasmus, 3001, 13<sup>e</sup>me Avenue Nord Sherbrooke (Québec) J1H 5N4. Téléphone: 819-564-5263 Télécopieur: 819-564-5265

## CONCLUSIONS

➤ **PRADA**, a practical hands-on regional educational program, helped FPs from the Sherbrooke area to recognize, work up and refer inflammatory polyarthritis more consistently.

➤ The use of a Standard Referral Form improved the quality of the information provided with referrals.

➤ Positive inflammatory markers and a complete antibody profile are predictors of a confirmed inflammatory polyarthritis, the main outcome.

➤ Reliability in identifying synovitis remains problematic, even after physical examination training with real patients.

➤ Establishing and continuing this type of learning activity may improve referrals and contribute to early diagnosis and treatment of IA patients by rheumatologists.