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Modes of Presentation of Reactive Arthritis Based on the Affected Joints

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ABSTRACT

Introduction: Reactive arthritis is an autoimmune condition that occurs as a reaction against an infection site elsewhere in the body. Reactive arthritis affects mostly young ages, mainly group age 20-40 y.o., mostly males with ratio 2:1 against females, sometimes 3:1, and even 14:1. The purpose of the study was to observe the mode of illness presentation based on the number of affected joints. **Material and Methods:** During the 01.03.2012 – 01.03.2014 in the Clinic for Rheumatology and O.S.I.R. "Vendenisi – AL" in Besiana have been examined, elaborated and hospitalized 100 patients with reactive arthritis, out of them 66 males and 34 females. Patients underwent necessary laboratory, hematological, biochemical, and immunological examinations. Subsequently each affected joint has been examined based on the propedeutics rules (inspection, palpation and assessment of the level of motility), as well as x ray examination. **Results:** From 100 examined patients 66% were males and 34% females respectively. 11% of them were in the 10-20y.o. group age, 30% belonged to group age 21-30 y.o., 24% of patients to 31-40 y.o. group age, 30% to 41-50 y.o. group age, and 5% of patients to the group age over the 51 year old. Regarding the affected articulations and modes of illness presentation, we've obtained the following results: Knee was affected in 64.7% female and 52,12% male patients respectively, T/C joint in 50% female and 57.57% male patients, MTPH joint in 41.11% female and 48.48% male patients respectively, and R/C joint in 44.11% female and 48.48% male patients respectively. Oligoarticular type is seen in 73% male and 70% female patients. Monoarticular type is seen in 14% male and 13% female patients, and poliarticular type is seen in 10% male and 14% female patients respectively. Results from our study have revealed that: reactive arthritis is more frequent in males than females in ratio 2:1 in the infections of urogenital infection, 3:1 in nasopharyngeal infections, and similar in infections of enteral origin. **Conclusion:** Reactive arthritis mostly attacks young ages 20-40 y.o., while over the age of 50 and below the age of 20 is rarely seen. First reactive arthritis attack in males occurs earlier than in females. Most affected joints are: knee, talocrural joint, metatarsophalangeal (MTPH) joint, radiocarpal (R/C) joint, and proximal interphalanteal (PIPH) joint. Oligoarticular mode of illness presentation is 2.5 more frequent than mono and poliarticular mode of illness presentation.

Key words: reactive arthritis, joint, monoarticular, oligoarticular and poliarticular presentation.

1. INTRODUCTION

Reactive arthritis is an autoimmune condition with onset as a reaction against an infection located anywhere in the body (1). Condition affects young ages, mostly the group age 20-40 year old, mostly males in ration 2:1,3:1 sometimes even 14:1.

Reactive arthritis is a known condition since the age of Hippocrates and is described as post-dysenteric arthritis (2) and as an post-urethritis arthritis as described by Van Forest (3) since 1507.

Later on, reactive arthritis originating from urogenital tract and enteral tract was dubbed with over hundred (100) names (4, 5).

The most important are:

- Reiter diasease (Sy Reiter),
- Sy FLR {Feissinger Leroy Reiter}
- Uroarthritis,
- Enteroarthritis,
- Arthritis reactiva,
- SARA (Sexually acquired reactive arthritis),
- CIA (Chlamydia initiated arthritis),
- ERA (enteropathic reactive arthritis),
- A. Re. B27 positive.

Today's name reactive arthritis (RA) dates since '70 as proposed by Ahvonen and colleagues (6, 7). According to them, RA is a condition with following features:

- Presents after an infection with known etiology,
- From infection to the onset of arthritis is preceded by a latent infection which usually last 1-3 weeks.
- Synovial liquid is always sterile.
- Antibiotics are effective in the treatment of infection, but have no impact on arthritis.

According to American Colleague for Rheumatology, RA is defined as an episode of a peripheral arthritis which last longer than one month and is related to urethritis or cervicitis (8).

Initial to illness are usually genitourinary and gastroenteral infections (9, 10). Reactive arthritis is a sero-negative arthropathy, usually associated with B27, mostly encountered among Caucasian race of the group age from 20 to 40 year-old (11, 12), more frequently among men than women.

Reactive arthritis among children is more rare and makes around 3% of all patients with RA (13). RA usually starts with urinary discomfort, followed by arthritis (talo-crural articulation, knees) and conjunctivitis which is present among 50% of all patients with RA with uro-genital origin, and 75% of patients with gastroenteral origin.

Typical feature of RA is enthesopathy (typical starting location of inflammation, inserting point of tendons on the calcaneus bone) (14).

Genetic factor is very important in the presentation of RA, it is found in 70-90% of HLA-B27 positive individuals. Illness has usually an acute onset, subacute course, in 15% to 50% of cases has relapsing or chronic course (15).

Incidence in the USA ranges from 3 to 5 cases in 100.000, whereas HIV positive and HLA B27 positive individuals develop reactive arthritis in 75% of cases (16).

In Norway incidence ranges around 4.6 in 100.000 inhabitants , in the Great Britain presence of RA is 0.8% among all patients who contracted urinary tract infections, in Finland the incidence goes up to 2%. Incidence of R.A. in Czech Republic was 9.3 in 100.000 inhabitants (20). In the Great Britain 1 in 14 individuals is bearer of 00 HLA-B27, while 3 out of 4 people with reactive arthritis have this gene.

To explain the pathogenesis of this condition, we must bear in mind three factors:

- Infective agent;
- Genetic predisposition, and
- Hypothetic immune mechanism.

To better understand immune-etiopathogenesis of RA and its correlation with HLAB27 we ought know:

- Role of HLAB27 in the chronic inflammation process;
- Model of arthritogenic peptide;
- Theory of self auto-immunity modulation and cytotoxic reaction;
- Role of HLAB27 as an autoantigen to CD4 and lymphocytes.
- All these events give the illness two directions: a) Spontaneous remission of arthritis, or b) Secondary auto-immune reaction as seen on the chronic reactive arthritis
- Causing agents of R.A. are mane, such as:
- Bacterial;
- Viral;
- Genetic–immunologic;
- Various vaccines;
- Biologic substances and medications, and
- Other unknown causative agents

Causative agents of R.A. are divided in three main groups:

- Classic agents;
- New agents, and
- Other agents.

Classic agents	New agents	Other agents
	Chlamydia pneumoniae	Interferon alfa
Urogenital	Neisseria gonorrhoeae	Vaccination against HB
Chlamydia trachomatis	Borrelia burgdorferi	BCG and vesical cancer
Ureaplasma urealyticum	Clostridium difficile	HIV
	Streptococcus beta-hemolitik	
	Propinobacterium acnes	
	E. Coli	
Enteral	Pseudomonas spp.	
Yersinia spp.	Leptospira	
Shigella spp.	tropheryma whippelii	
Campylobacter jejuni	Gardnerella vaginalis	
	Giardia lamblia	

Table 1. Causative agents of Reactive arthritis. Source: Archives of internal medicine – http://www.scielo.edu.uy/scielo.php?pid=S0250-38126201000040004&script=sci-arttext. Accessed 14.03.2014.

Causative agents of R.A. are divided in three main groups: a) Classic agents; b) New agents, and c) Other agents.

2. PURPOSE AND METHODS OF STUDY

Purpose of study

Purpose of study is to observe the mode of presentation of illness based on the number of affected joints.

Total number of 100 patients with reactive arthritis are examined, elaborated and hospitalized, whereby 66 were male and 34 female patients respectively, who were treated in the Clinic for Rheumatology and O.S.I.R. "Vendenisi – AL" in Besiana, during the period 01.03.2012-01.03.2014.

Patients underwent necessary laboratory investigations: hematological, biochemical, and immunological analyses, subsequently each affected joint has been examined based on the rules of propedeutics (inspection, palpation, assessment of the level of motility, and x ray examination).

From the study were excluded:

- Patients with negative results (bacterial agent not isolated among them);
- Patients with other underlying comorbidity of inflammatory rheumatism;
- Patients with non-rheumatic illnesses, but with similar manifestations to reactive arthritis (diarrhea caused by Rota virus, arthralgia of non-rheumatic nature).

Clinical presentation

- Onset of reactive arthritis is characterized with tiredness, slight body temperature elevation, joint swelling usually on the lower limbs with asymmetric affection of joints. Sometimes swelling and pain are present on the hands' fingers who look like a sausage, and on the insertion point of tendon into calcaneus is present enthesopathy of heel.

	Male		Female	
	Nr.	%	Nr.	%
Knee	41	62.12%	22	64.70%
Art. TC	38	57.57%	17	50%
Art. MTF	32	48.48%	15	44.11%
Art. RC	15	22.72%	8	23.52%
Art. MCF	12	18.18%	5	14.7%
Art. PIF	5	7.57%	3	8.82%
Art. Cubiti	3	4.54%	2	5.88%
Art. HS	3	4.54%	2	5.88%
X^2=test	X^2=0.66; SHL=7, p=0.99			

Table 2. Affected joints in reactive arthritis

- Oligoarthritis, sometimes monoarthritis, and rarely asymmetric polyarthritis are present two or three weeks after an urogenital or gastrointestinal infection and is associated with:
- Pain, temperature, and not necessarily redness usually on the talocrural or knee joint, are the most common clinical manifestation of reactive arthritis.
- Pain and temperature are present on the onset of illness which can be seen for weeks, with occasional subsides. Later on, pain impacts the lumbar region and often awakes patients in the early morning hours. This type of pain is usually encountered on the sacroiliac articulation. Often is seen plantar pain as a consequence of calcaneal tendo-osteitis of the Achilles tendon

Physician should think about RA if:

- Patient is present with Oligoarthritis (knee, talocrural articulation) and refers to have a diarrhea or urinary infection several days ago.
- Patient with Oligoarthritis who has a heel tenosynovitis or fasciitis.
- Episodic rheumatism (joint pain and inflammation which last several hours or days and subsequent back to the normal state)
- Patients presents with both arthritis and dactilitis.

3. RESULTS

Prevalence by gender

Analysis of the total number of patients resulted with: as for gender, of the total number of patients with RA males make up 66% of patients, and females make up 34% of patients respectively.

In our study largest percentage of patients with R.A. is within the group age from 21 to 30 year old males and 31 to 40 year old females. Under the age of 20 year old we have 12 patients, 6 females and 6 males respectively, while over the age of 50 year old we had 5 patients, 3 females and 2 males respectively. A characteristic feature is noticed: under the age of 20 R.A. is present more frequently among females. Similar situation prevails over the age of 50 year old too.

Patients are divided into three categories (Figure 1): students up to 18 year old, students up to 25 year old, and others over the age of 25. the graph indicates that under the age of 18 year old are 6 students with RA. Under the age of 25 are 17 students, and 77 patients belong to the other group who are older than 25 year old. Noteworthy is fact the youngest patient was 13 year old, while the oldest was 54 year old.

Affected joints among patients with reactive arthritis (Sy R.): division by gender Results from the analysis indicate that knee articulation was the most attacked joint with statistical significance P<0.0001 in comparison to other joints, but with no statistical significance of joint involvement related to gender. The graph indicates that radiocarpal articulation along with knee articulation, cubital articulation and humero-scapular articulation are more affected among females than males (Table 2).

Number of affected joints	Monoarticular type		Oligoarticular type		Poliarticular type		Total		X^2=test
	Nr.	%	Nr.	%	Nr.	%	Nr.	%	
Males	9	13.63%	48	72.72%	9	13.63%	66	100%	X^2=0.31 SHL=2, P=0.85
Females	4	10.76%	24	70.58%	6	17.64%	34	100%	
Total	13	13%	72	72%	15	15%	100	100%	X^2=62.6; SHL=2 P<0.00001

Table 3. The mode of illness presentation

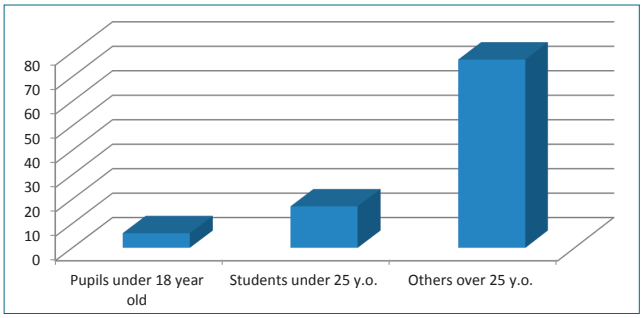

Figure 1. Data on the patients'vocation

The mode of illness presentation based on the number of affected joints the course of illness is mostly oligoarticular, most present type among males in 73% of cases and 70% of females respectively. Oligoarticular type has an significant statistical difference p<0.0001. It is followed by poliarticular type present in 17% of female patients and in 13% male patients respectively. Monoarticular type is least present, without difference in gender presentation (Table 3).

4. DISCUSSION

The study reveals that reactive arthritis is illness that mostly affects male gender in ratio 2:1, 3:1, 8:1, etc. in the cases of reactive arthritis of urogenital etiology, whereas situation with reactive arthritis of enteral etiology is different (frequency among genders is usually equal, with a slight domination of female gender).

Our finding among 100 patients with reactive arthritis was ratio 2:1 in favor of males in urogenital type. The ratio is 3:1 in favor of males in reactive arthritis of nasopharyngeal cavity. Whereas in cases of reactive arthritis of en-

teral etiology frequency among genders is similar, with a slight increase among females.

As for the age, our study indicates that most attacked group age is 20-40 year old, whereas under the age of 20 and over the age of 50 the illness is rarely seen.

In our study the youngest patient was a 13 year old, literature indicates that reactive arthritis is rarely seen under the age of 9. these cases are described by authors: Marica Villa C., Sifuentes Geraldo W. et all (17).

As for the involved joints, Neuwelt e at have analyzed 25 patients, of them 13 females and 12 males (18). Upper articulations were mostly involved among females, and also came to conclusion that illness is in equal gender correlation between males and females.

In our study we have obtained identical results with regard to involvement of upper extremities. Knee joint was the most affected articulation in both genders, followed by talocrural (T/C) articulation, metatarsophalangeal (MTPH) articulation, radiocarpal (R/C) articulation, etc.

What we notice is fact that female suffer mostly attacks on upper articulations, though one of reactive arthritis features is asymmetric involvement of joints, and mostly lower extremity joints. In this regard R/C articulation in females is more affected than in males. R/C joint, PIPH joint and elbow are more present among females, and is in line with findings of authors: Popert AJ, et al (19) in a prospective study on reactive arthritis carried out with 82 cases and Smith DL et al in the study "Reiter's Disease Among Females" (20) confirms this fact even stronger.

5. CONCLUSION

Out of 100 examined patients 66% were males and 34% females respectively. Their group ages were:

From total amount of patients included in the study 11% were in the group age 10-20 year old, 30% in the group age 21-30 y.o., 24% were in the group age 31-40 y.o., 30% were in the group age 41-50 y.o. and 5% over the age of 51.

As for the involved articulations and mode of illness presentation, we have the following results: knee involvement is seen among 64.7% of females and 52,12% males respectively, T/C articulation in 50% female and 57.57% male patients respectively. MTPH articulation in 41.11% female and 48.48% male patients respectively, and R/C articulation in 44.11% female and 48.48% male patients respectively: a) Oligoarticular type is seen 73% male and 70% female patients respectively; b) Monoarticular type is seen in 14% male and 13% female patients respectively; c) Poliarticular type is seen in 10% male and 14% female patients respectively.

Results from our study have indicated that reactive arthritis is more frequent among males than females in ratio 2:1 in cases with urogenital etiology, 3:1 at nasopharyngeal infections, and is equal in infections of enteral etiology.

CONFLICT OF INTEREST: NONE DECLARED.

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