Prevalence of Rheumatic Disease in HIV Infected Thai Patients

Praveena Chiowchanwisawakit MD*, Achara Koolvisoot MD*,
Winai Ratanasuwan MD**, Surapol Suwanagool MD**

** Division. of Rheumatology, Department of Medicine, Faculty of Medicine, Siriraj Hospital, Mahidol University*
*** Department of Preventive and Social Medicine, Faculty of Medicine, Siriraj Hospital, Mahidol University*

Objective: *To determine the prevalence of rheumatic diseases in HIV-infected patients at Siriraj Hospital, Thailand.*
Material and Method: *178 patients who attended the HIV-Clinic at Siriraj Hospital between November 2002 and February 2003 were examined for the presence of rheumatic diseases. Diagnosis of HIV infection was performed by ELISA and confirmed by partial agglutination testing. HIV-infected patients were classified according to the Centers for Disease Control (CDC) 1993 revised classification system. Standard criteria were used to classify the rheumatic diseases.*
Results: *98 patients had rheumatic diseases. Seventy-seven patients were treated with antiretroviral drugs. Forty-nine patients had mechanical low back pain, twenty-four patients had arthralgia, nineteen patients had plantar fasciitis, eighteen patients had nonspecific myalgia, thirteen patients had fibromyalgia, and eleven patients had others. Arthralgia was associated significantly with Quadricept muscle wasting ($p = 0.00001$). Nonspecific myalgia was more likely to be associated with female ($p = 0.018$) and less likely with use of antiretroviral therapy ($p = 0.031$).*
Conclusion: *Rheumatic diseases were commonly found in HIV-infected patients. Arthralgia associated with wasting Quadricep muscle. Nonspecific myalgia was predominant in female and without antiretroviral drug treatment.*

Keywords: *Reactive arthritis, Reiter's syndrome, Psoriatic arthritis, HIV-associated arthritis, Septic arthritis, Mycobacterium infection, Rheumatic fever, Fibromyalgia, Arthralgia, Plantar fasciitis, Back pain, Retroviruses, HIV, Human immune deficiency viral infection.*

J Med Assoc Thai 2005; 88 (12): 1775-81
Full text. e-Journal: *http://www.medassocthai.org/journal*

Human Immunodeficiency Viral (HIV) infection is an important problem nowadays. The virus is estimated to afflict more than 60 million patients around the world and six hundred thousand to one million patients in Thailand[1]. Many studies of various musculoskeletal and connective tissue disease syndromes associated with HIV infection have been reported. Prevalence of rheumatic manifestations in HIV infected patients has been reported from less than 1% to more than 60%[2]. It depends on the study method. A number of HIV infected patients have been treated with highly aggressive anti-retroviral therapy (HAART) for ten years which Louthrenoo[3] has reported in his study of musculoskeletal manifestations of HIV infection in Thailand. All of those patients had musculoskeletal symptoms and were referred to the Rheumatology Division, Department of Medicine, Chiang Mai University Hospital. The common musculoskeletal manifestations were undifferentiated (seronegative) arthritis (38%), bone and joint infection (30%), psoriatic arthritis (9%), AIDS-associated arthritis (9%) and Reiter's syndrome (8%).

Correspondence to : Chiowchanwisawakit P, Division of Rheumatology, Department of Medicine, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand.

The purpose of this study was to discover the prevalence of rheumatic diseases in HIV infected patients and to compare types of rheumatic diseases with or without use of antiretroviral drugs at Siriraj Hospital.

Material and Method

The study utilized a cross sectional study design. The studied population were outpatients of the HIV-Clinic at Siriraj Hospital, Bangkok, Thailand, between November 2002 and February 2003. HIV infection was diagnosed by enzyme-linked immunoabsorbent assay (ELISA) and confirmed by a partical agglutination test. HIV infected patients whose diagnosis was not yet confirmed were excluded from the present study. The subjects were selected from every fifth of the ordinal number. All patients were interviewed and underwent a complete rheumatologic examination. All participants were asked about some demographic characteristics and clinical profiles such as age, sex, risk factor for HIV infection, underlying diseases, drug used for antiretroviral drugs exposure. All symptoms and signs of the musculoskeletal system and other related abnormalities were gathered. The serum CD4 lymphocyte count of all subjects was provided. Complete blood count, urine analysis, liver and kidney function tests, serum muscle enzymes, rheumatoid factor (RF), antinuclear antibody (ANA), serological test for syphilis (VDRL), synovial fluid (SF) analysis, hemoculture or fluid culture, and relevant imaging study were performed as indicated clinically. HIV infection staging was classified according to the Centers for Disease Control (CDC) 1993[4] revised classification system for HIV infection.

The diagnosis of spondyloarthropathy was defined by the European Spondyloarthropathy Study Group (ESSG) preliminary criteria for the classification of spondyloarthropathy[5], Reiter's syndrome and psoriatic arthritis were defined by previously proposed criteria; definite fibromyalgia syndrome was defined by using the American College of Rheumatology (ACR) 1990 criteria[6]. Having tender points between eight and ten of eighteen points were considered to be probable fibromyalgia syndrome. Having an uncomfortable sensation in the lumbar and buttock regions and an onset associated with a physical task were considered to be mechanical low back pain[7,8]; other rheumatic diseases were defined by standard or proposed criteria[9,10]. All study participants provided a written informed consent, and the study protocol was approved by the Independent Ethics Committees of Siriraj Hospital.

A sample size calculation based on the prevalence of Reiter's syndrome in Berman et al[11] (9.9%), and 95% confidence interval for single proportion extended from 0.045 to 0.099. It was determined in a sample size of 170 patients. Demographic characteristics and HIV infection staging were calculated as frequency counts, percentages, mean, and standard deviation. The t-test or Mann-Whitney U test were used for two independent samples for continuous variables, and the Chi-square test used for categorical variables. All analyses were performed as two-sided with the minimum significant level set at 5%.

Results

One hundred and seventy eight patients were included in the present study. Their ages were between 23 and 73 years (mean $\pm$ standard deviation (SD) = 37 $\pm$ 8.7 years). There were one hundred and one males and seventy-seven females. The risk factors for HIV infection were: heterosexuality, 168 cases (94.3%); homosexuality, 4 cases (2.2%); bisexuality, 6 cases (3.5%); intravenous drug users, 7 cases (3.9%); and blood transfusion, 4 cases (2.2%). Each patient might have had more than one risk factor. The mean duration of the diagnosis of HIV infection to the time of the study was 30.3 $\pm$ 34.5 (mean $\pm$ SD) months (0.1-158.7 months). Seventy-seven patients were treated with antiretroviral

Table 1. Centers for Disease Control 1993 revised classification system of 171 HIV-infected patients

CD4+ lymphocyte count (cell/mm^3)	Clinical categories		
	Asymptomatics N (%)	Symptomatics N (%)	AIDS-Indicator N (%)
$\geq$ 500	3 (1.8)	0	1 (0.6)
200-499	9 (5.3)	11 (6.4)	6 (3.5)
< 200	14 (8.2)	46 (26.9)	81 (47.4)

AIDS-Indicator = AIDS-Indicator conditions

Table 2. The prevalence of rheumatic diseases (N = 178)

Rheumatic disease	Number (%)	
Arthralgia	24	(13.5%)
Arthritis	6	(3.4%)
HIV associated arthritis	2	(1.1%)
Psoriatic arthritis	1	(0.6%)
Others	3	(1.7%)
Nonspecific myalgia	18	(10.1%)
Definite/probable fibromyalgia	13(4/9)	(7.3%)
Plantar fasciitis	19	(10.7%)
Mechanical low back pain	49	(27.5%)
Others	11	(6.1%)
Gout	2	(1.1%)
Frozen shoulder	3	(1.7%)
Carpal tunnel syndrome	1	(0.6%)
Right medial epicondylitis	1	(0.6%)
De Quervain tenosynovitis	1	(0.6%)
Trigger finger	1	(0.6%)
Soft tissue infection	1	(0.6%)
Cutaneous vasculitis	1	(0.6%)

drugs. The mean duration of antiretroviral drug treatments was 15.0 ± 22.5 (mean ± SD) months (0.2-122.2 months). Five of the sixty-five patients had hepatitis B viral infection and two of the forty-seven patients had hepatitis C viral infection. CDC staging for HIV infection is shown in Table 1.

Ninety-eight patients (55%) had rheumatic symptoms. The prevalence of rheumatic diseases is shown in Table 2. There was no statistically significant difference between patients with and without rheumatic diseases in terms of age, sex, risk factors for HIV infection, CD4 lymphocyte count, staging of HIV diseases, or use of antiretroviral therapy.

Prevalence of arthralgia was 13.5%. Sixteen patients were oligo-polyarthralgia and eight patients were monoarthralgia. Knee joint was the most common involvement (92%). All patients had intermittent arthralgia. Eleven of twenty-four patients with arthralgia had wasting Quadricep muscles compared with 2 of 154 patients without arthralgia (p = 0.00001) as shown in Table 3. Six patients got arthritis (two HIV associated

Table 3. Characteristic of patients with or without arthralgia

Characteristics	Arthralgia	No arthralgia	p value
Mean Age (yrs) (± SD)	36.5 ± 7.5	37.1 ± 8.9	0.75
Sex (Male/Female)	13/11	88/66	0.96
Clinical classification (%)			
Asymptomatics	2 (8.3%)	24 (16.3%)	
Symptomatics	9 (37.5%)	48 (32.7%)	0.59
AIDS-Indicator conditions	13 (54.2%)	75 (51%)	
Antiretroviral drug	9 (37.5%)	68 (44.1%)	0.7
Muscle wasting	11 (45.8%)	2 (1.2%)	<0.00001

Table 4. Characteristic of patients with or without nonspecific myalgia

Characteristics	Nonspecific myalgia	No Myalgia	p value
Mean Age (yrs) ± SD	35.9 ± 8.1	37.2 ± 8.8	0.558
Sex (Male/Female)	5/13	96/64	0.018
Clinical classification			
Asymptomatic	4 (22.2%)	22 (13.8%)	
Symptomatic	7 (38.9%)	51 (31.9%)	0.437
AIDS-indicator conditions	7 (38.9%)	85 (53.1%)	
Antiretroviral drug	3 (16.6%)	74 (46.3%)	0.031

arthritis, one psoriatic arthritis, one acute rheumatic fever, one chronic monoarthritis of unknown cause, and one sacroiliitis). The acute rheumatic fever patient got additive oligoarthritis and heart failure. Echocardiography found generalized severe hypokinesia, left ventricular dilatation, diastolic dysfunction, left ventricular ejection fraction of 23%, moderate pulmonary valve regurgitation and tricuspid regurgitation, and minimal pericardial effusion. Anti-streptolysin O (ASO), Antideoxyribonuclease B (AntiDNase B) titer and ESR were 502 IU/ml (normal < 200 IU/ml), 1435 IU/ml (normal < 200 IU/ml), and 112 mm/hr, respectively. This patient had not used any medications or illegal drugs and showed evidence of streptococcal infection. There were two major and one minor of Jones' criteria[10], and evidence of streptococcal infection, so we made a diagnosis of acute rheumatic fever according to Jones criteria update 1992[10]. He had no clinical heart failure after he was treated with corticosteroid for one week. Prevalence of nonspecific myalgia was 10.1%. Females were predominant. Most of the patients were not being treated with antiretroviral drugs as shown in Table 4.

Forty nine patients got mechanical low back pain and all of them were intermittent. Twelve patients needed to take acetaminophen sometimes for relief back pain but they were not interfered daily activity by back pain. Mechanical low back pain, plantar fasciitis, definite fibromyalgia, probable fibromyalgia, and arthritis provided no significant difference between the patients with and without each group of these rheumatic diseases for mean age, sex, risk factors for HIV infection, staging of HIV disease, or use of antiviral therapy. Three patients suffered with frozen shoulder and all of them were male. The first patient had been treated with stavudine, lamivudine, and indinavir since December 2001. He experienced shoulder pain and limited range of motion and got lipodystrophy and gynecomastia since September 2002. The second patient suffered from shoulder pain after a stroke. The last patient had plantar fasciitis and mechanical back pain. There was gout in 2 cases; carpal tunnel syndrome in 1 case; right medial epicondylitis in 1 case; De Quervain Tenosynovitis in 1 case; trigger finger in 1 case; mycobacterium soft tissue infection in 1 case; and cutaneous vasculitis in 1 case.

Discussion

The prevalence of rheumatic manifestations in the present study was 55%. Mechanical low back pain was the most common symptom. All of them were intermittent pain and were interfered insignificantly in daily activity by back pain. Low back pain is a very common health problem in population; between 65% and 80% of the world's population develop back pain at some point during their lives; non-specific low back pain was the most frequent diagnostic group at 56.8%[8]. The authors did not inquire about occupation or work experience so it could not be concluded what the etiology of mechanical low back pain in these patients was or it was associated with HIV infection. The prevalence of arthralgia in the present study was lower than the prevalence of arthralgia in Berman et al's study[11] (34.7%). In their study, 84% of the population were Caucasian and 75.2% of them were homosexual. Most patients in the present study were intermittent oligoarthralgia and were affected mostly with knee and ankle joints like in Berman et al[11]. The authors found arthralgia associated significantly with wasting Quadricep muscle but did not associate it with viral hepatitis B, viral hepatitis C, or use of antiretroviral drugs. This finding differed from the European survey of December 1998-December1999[12] that found significant association between arthralgia and usage of protease inhibitors. Populations in the European survey were comprised of homosexuals (55%), heterosexuals (22%), and intravenous drug users (16%) and the protease inhibitor treated 77%. This dissimilarity in population distribution might be the reason for the different outcome.

Incidence of spondyloarthropathy in patients with HIV infection has been reported, ranging from 0.2-38%. Berman et al[11] reported a prevalence rate of 9.9% for Reiter's syndrome and 1.9% for psoriatic arthritis. Louthrenoo[3] reported an incidence rate of 8% for Reiter's syndrome, 9% for psoriatic arthritis, and 38% for undifferentiated spondyloarthropathy. Increased incidence of spondyloarthropathy in HIV patients was associated with sexual behavior[13]. The authors found a prevalence of arthritis at 3.4%. We defined spondyloarthropathy by ESSG classification criteria[7]. There was only one patient got chronic asymmetrical polyarthritis and psoriasis so the diagnosis was psoriatic arthritis which was one of diseases belonging to the spondyloarthropathies[14]. Seventy-seven patients (43.3%) in the present study were treated with antiretroviral drugs compared with 5 patients (5%) in Louthrenoo's study[3]. McGonagle et al[15] reported that HAART improved arthritis from spondyloarthropathy in HIV-infected patients. The difference in prevalence of arthritis might be the result of antiretroviral drug therapy or population characteristics which were different between the present study and other studies.

The authors found the prevalence of nonspecific myalgia at 10.1%, like Berman et al's study[11]. Nonspecific myalgia was found in all stages of HIV infection, more common in females than males, and significantly lower rates of antiretroviral drug treatment compared to patients without myalgia. The prevalence of fibromyalgia in the present study was 7.3% and was not associated with the duration of HIV infection. In contrast, Simms et al[16] reported the prevalence of fibromyalgia at 22.7%, which was significantly associated with a longer duration of HIV infection and depression. In their study, there was 52% of intravenous drug users compared to 3.9% in the present study. The difference in prevalence of fibromyalgia might result from different risk factors of HIV infection. The prevalence of plantar fasciitis in the present study was 10.1%. The authors found plantar fasciitis more frequently in males than in females but this was not statistically significant. No one of these patients met ESSG criteria for spondyloarthropathy. One of three cases of frozen shoulder had been treated with indinavir for 9 months before he got frozen shoulder, lipodystrophy, and gynecomastia. Lipodystrophy and gynecomastia were common side effects of the protease inhibitor. Florence et al[17] reported that rheumatologic complications (frozen shoulder, temporomandibular dysfunction, Dupuytren's disease, and tendonitis) were associated with the use of indinavir and other protease inhibitors. The authors could not conclude this association because of the small sample in the present study.

Musculoskeletal infection is less common in western countries than in eastern countries. Risk factors for septic arthritis in HIV-infected patients are young males, intravenous drug abuse, and haemophilia[18,19]. Fourteen of 4023 HIV-infected patients in the Ventura et al's study[20] and 30 of 3000-4000 HIV-infected patients in the Vassilopoulos et al's report[21] got musculoskeletal infection. Louthrenoo[3] reported the prevalence of septic arthritis was 30% at Chiang Mai University in Thailand where the prevalence of HIV infection and some tropical infections was high. In contrast, there was only one mycobacterium soft tissue infection and no septic arthritis in the present study. The different result may be from the small sample size, different population characteristics, or different incidences of tropical infection. One patient got acute rheumatic fever. There are a number of etiologies of myocardial disease in HIV-infected patients[22,23]. He had no obvious other cause of heart failure. Rheumatic heart disease in HIV-infected patients has been reported[24,25]. Both patients suffered from heart failure and subsequently died without definite diagnosis. Rheumatic heart diseases were diagnosed after performing autopsies and Aschoff's bodies in the myocardium and subendocardium were shown. Therefore, rheumatic heart disease should be a differential diagnosis in HIV-infected patients with cardiac involvement, particularly with heart failure.

There were a number of studies[26,27] reporting a higher prevalence of positive ANA and RF in HIV-infected patients, more than in healthy populations. Two studies[3,28] in Thailand reported that the prevalence of positive ANA and RF in HIV-infected patients was 3-4% and 3.3%, respectively. There was no association between positive serology and rheumatic diseases. The authors did not perform these serologic tests in every participant so this relationship could not be shown.

Conclusion

The present study showed that rheumatic diseases were common in HIV-infected patients. The most common diagnosis was mechanical back pain, followed by arthralgia, nonspecific myalgia, plantar fasciitis, fibromyalgia, and arthritis. Arthralgia was significantly associated with wasting Quadricep muscle. Nonspecific myalgia was found to be more common in females and patients without antiretroviral drug treatment.

Acknowledgment

The authors wish to thank my teachers, L. Parivisutt, W. Thammalikit, S. Nilkanuwong, E. Arromdee, for helpful discussion, S. Udompanthuruk for the data analysis, A. Korff for correcting my manuscript, W. Kutchamart for assisting in the study, Siriraj Hospital for supporting the study, and all the patients and nurses who participated in the study.

References

1. HIV/AIDS in Asia and the Pacific Region 2003. http://www. who.int/hiv/en/
2. Berman A, Cahn P, Perez H, Spindler A, Luero E, Paz S, et al. Human immunodeficiency virus infection associated arthritis: clinical characteristics. J Rheumatol 1999; 26: 1158-62.
3. Louthrenoo W. Musculoskeletal manifestations of HIV infection in Thailand: an analysis of 100 cases. APLAR J Rheumatol 1998; 2: 17-26.
4. Centers for Disease Control and Prevention. Update: trends in AIDS diagnosis and reporting under the expanded surveillance definition for

adolescents and adults-United States, 1993. Morb Mort Week Rep 1994; 43: 826-31.
5. Dougados M, Van Der Linden S, Juhlin R, Huitfeldt B, Amor B, Calin A, et al. The European Spondyloarthropathy Study Group preliminary criteria for the classification of spondy-loarthropathy. Arthritis Rheum 1991; 34: 1218-27.
6. Wolfe F, Smythe HA, Yunus MB, Bennett RM, Bombardier C, Goldenberg DL, et al. The American College of Rheumatology 1990 criteria for the classification of fibromyalgia. Arthritis Rheum 1990; 33: 160-72.
7. Casey PJ, Weinstein JN. Low back pain. In: Ruddy S, Harris ED, Sledge CB, editors. Kelly's textbook of rheumatology. 6th ed. Philadelphia: WB Saunders, 2001: 509-23.
8. Borenstein DG. Low back pain and lumbar spinal stenosis. In: Hochberg MC, Silman AJ, Smolen JS, Weinblatt ME, Weisman MH,editors. Rheumatology. 3rd ed. Edinburgh: Mosby, 2003: 583-613.
9. Wallace SL, Robinson H, Masi AT, Decker JL, McCarty DJ, Yu T-F. Preliminary criteria for the classification of the acute arthritis of primary gout. Arthritis Rheum 1977; 20: 895-900.
10. Special writing group of the committee on rheumatic fever, endocarditis, and Kawasaki disease of the council on cardiovascular disease in the young, American Heart Association: Guidelines for the diagnosis of rheumatic fever: Jones criteria, updated 1992. JAMA 1992; 268: 2069-73.
11. Berman A, Epinoza LR, Diaz JD, Aguilar JL, Rolando T, Vasey FB, et al. Rheumatic manifestation of human immunodeficiency virus infection. Am J Med 1988; 85: 59-64.
12. Schrooten W, Borchert M, Dreezen C, Baratta C, Smets E, Kosmidis J, et al. Participants in HIV clinical trials in Europe. In J STD AIDS 2001; 12: 94-9.
13. Louthrenoo W. HIV Infection and spondyloarthropathy. Intern Med J Thai 2002; 18: 303-7.
14. Van der Linden S, Van der Heijde D. Classification of spondyloarthropathies. In: Hochberg MC, Silman AJ, Smolen JS, Weinblatt ME, Weisman MH, editors. Rheumatology. 3rd ed. Edinburgh Mosby, 2003: 1149-51.
15. McGonagle D, Reade S, Marzo-Ortega H, Gibbon W, O'Connor P, Morgan A, et al. Human immunodeficiency virus-associated spondyloarthropathy: pathogenic insights based on imaging finding and response to highly active antiretroviral treatment. Ann Rheum Dis 2001; 60: 696-8.
16. Simms RW, Zerbini C AF, Ferrante N, Anthony J, Felson DT, Craven DE, et al. Fibromyalgia syndrome in patients infected with human immunodeficiency virus. Am J Med 1992; 92: 368-74.
17. Florence E, Schrocten W, Verdonok K, Dreezen C, Colebunders R. Rheumatological complications associated with the use of indinavir and other protease inhibitors. Ann Rheum Dis 2002; 61: 82-4.
18. Espinoza LR, Berman A. Soft tissues and osteoarticular infections in HIV-infected patients and other immunodeficient states. Bailliere's Clin Rheumatol 1999; 13: 115-28.
19. Espinoza LR, Cuellar ML. Rheumatic manifestations of HIV-AIDS. Bailliere's Clin Rheumatol 2000; 14: 579-93.
20. Ventura G, Gasparini G, Lucia MB, Tumbarello M, Tacconelli E, Caldarola G, et al. Osteoarticular bacterial infections are rare in HIV-infected patients. Acta Orthopedica Scandinavica 1997; 68: 554-8.
21. Vassilopoulos D, Chalasani P, Jurado RL, Workowski K, Agudelo CA. Musculoskeletal infections in patients with human immunodeficiency virus infection. Medicine 1997; 76: 284-4.
22. Rerkpattanapipat P, Wengpraparut N, Jacons LE, Kotler MN. Cardiac manifestations of acquired immunodeficiency syndrome. Arch Intern Med 2000; 160: 602-8.
23. Barbaro G. Cardiovascular manifestation of HIV infection. Royal Society of Medicine. Journal of the Royal Society of Medicine 2001; 94: 384-9.
24. DiCarlo FJ, Anderson DW, Virmani R, Burns W, Macher Am, Rotiguez J, et al. Rheumatic heart disease in a patient with acquired immunodeficiency syndrome. Hum Pathol 1989; 20: 917-20.
25. Kelieher P, Sweeney J, Anderson J. Heart muscle disease related to HIV infection. BMJ 1995; 310: 941-2.
26. Kopelman RG, Zolla-Pazner S. Association of human immunodeficiency virus infection and autoimmune phenomenon. Am J Med 1988; 84: 82-8.
27. Medina-Rodriguez F, Guzman C, Jara LS, Hermida C, Alboukrek D, Cervera H, et al. Rheumatic manifestation in human immunodeficiency virus positive and negative individuals: a study of 2 populations with similar risk factors. J Rheumatol 1993; 20: 1880-4.
28. Kulthanan K, Jiamton S, Omcharoen V. Autoimmune and rheumatic manifestations and antinuclear antibody study in HIV-infected Thai patients. Int J Dermatol 2002; 41: 417-22.

โรครูมาติสซั่มในผู้ติดเชื้อเอชไอวีในโรงพยาบาลศิริราช

ปวีณา เชี่ยวชาญวิศวกิจ, อัจฉรา กุลวิสุทธิ์, วินัย รัตนสุวรรณ, สุรพล สุวรรณกูล

ศึกษาความชุกของโรครูมาติสซั่มในผู้ติดเชื้อเอชไอวีที่คลินิกโรคติดเชื้อเอชไอวีโรงพยาบาลศิริราช วันที่ 1 พฤศจิกายน พ.ศ. 2545 ถึง วันที่ 28 กุมภาพันธ์ พ.ศ. 2546 จำนวน 178 คน พบอาการของโรครูมาติสซั่มร้อยละ 56.7 ปวดหลังร้อยละ 27.5 ปวดข้อร้อยละ 13.5 พังผืดใต้เท้าอักเสบร้อยละ 10.7 ปวดกล้ามเนื้อร้อยละ 10.1 และภาวะอื่น ๆ ร้อยละ 18.5 ปวดข้อสัมพันธ์กับกล้ามเนื้อ Quadriceps wasting ($p < 0.00001$) ปวดกล้ามเนื้อพบในเพศหญิงมากกว่าเพศชาย ($p = 0.018$) และพบในกลุ่มไม่ได้รับยามากกว่าที่ได้รับยาต้านไวรัส ($p = 0.031$) โดยสรุปผู้ติดเชื้อเอชไอวีมีอาการและอาการแสดงของโรครูมาติสซั่มได้บ่อยและทุกระยะของโรค