

Chapter 19

Psoriatic Arthritis

Dafna D. Gladman & Vinod Chandran

REFERENCES

1. Moll JM, Wright V: Psoriatic arthritis. *Semin Arthritis Rheum* 3:55, 1973
2. Taylor W et al: Classification criteria for psoriatic arthritis: Development of new criteria from a large international study. *Arthritis Rheum* 54:2665, 2006
3. O'Neill T, Silman AJ: Psoriatic arthritis. Historical background and epidemiology. *Baillieres Clin Rheumatol* 8:245, 1994
4. Moll JM, Wright V: Familial occurrence of psoriatic arthritis. *Ann Rheum Dis* 32:181, 1973
5. Gladman DD et al: Assessment of patients with psoriatic arthritis: A review of currently available measures. *Arthritis Rheum* 50:24, 2004
6. Mease PJ, Gladman DD, Krueger GG: Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA). *Ann Rheum Dis* 64(Suppl. II):ii1, 2005
7. Chandran V, Raychaudhuri SP: Geoepidemiology and environmental factors of psoriasis and psoriatic arthritis. *J Autoimmun* 34:J314, 2010
8. Duffin KC et al: Genetics of psoriasis and psoriatic arthritis: Update and future direction. *J Rheumatol* 35:1449, 2008
9. Karason A, Love TJ, Gudbjornsson B: A strong heritability of psoriatic arthritis over four generations—The Reykjavik Psoriatic Arthritis Study. *Rheumatology (Oxford)* 48:1424, 2009
10. Nair RP et al: Genome-wide scan reveals association of psoriasis with IL-23 and NF-kappaB pathways. *Nat Genet* 41:199, 2009
11. Liu Y et al: A genome-wide association study of psoriasis and psoriatic arthritis identifies new disease loci. *PLoS Genet* 4:e1000041, 2008
12. Gladman DD, Farewell VT: The role of HLA antigens as indicators of progression in psoriatic arthritis (PSA): Multivariate relative risk model. *Arthritis Rheum* 38:845, 1995
13. Balding J et al: Cytokine gene polymorphisms: Association with psoriatic arthritis susceptibility and severity. *Arthritis Rheum* 48:1408, 2003
14. Rahman P et al: A variant of the IL4 I50V single-nucleotide polymorphism is associated with erosive joint disease in psoriatic arthritis. *Arthritis Rheum* 58:2207, 2008
15. Lascorz J et al: Lack of genetic association of the interleukin-4 receptor single-nucleotide polymorphisms I50V and Q551R with erosive disease in psoriatic arthritis. *Arthritis Rheum* 54:4023, 2006
16. Pattison E et al: Environmental risk factors for the development of psoriatic arthritis: Results from a case-control study. *Ann Rheum Dis* 67:672, 2008
17. Duffin KC et al: Association between IL13 polymorphisms and psoriatic arthritis is modified by smoking. *J Invest Dermatol* 129:2777, 2009
18. Fitzgerald O, Winchester R: Psoriatic arthritis: From pathogenesis to therapy. *Arthritis Res Ther* 11:214, 2009
19. Gisondi P et al: Lower limb enthesopathy in patients with psoriasis without clinical signs of arthropathy: A hospital-based case-control study. *Ann Rheum Dis* 67:26, 2008
20. Tan AL et al: The relationship between the extensor tendon enthesis and the nail in distal interphalangeal joint disease in psoriatic arthritis – A high-resolution MRI and histological study. *Rheumatology (Oxford)* 46:253, 2007
21. McGonagle D et al: The concept of a “synovio-entheseal complex” and its implications for understanding joint inflammation and damage in psoriatic arthritis and beyond. *Arthritis Rheum* 56:2482, 2007
22. McGonagle D, McDermott MF: A proposed classification of the immunological diseases. *PLoS Med* 3:e297, 2006
23. Ritchlin C: Psoriatic disease—From skin to bone. *Nat Clin Pract Rheumatol* 3:698, 2007
24. Kruithof E et al: Synovial histopathology of psoriatic arthritis, both oligo- and polyarticular, resembles spondyloarthropathy more than it does rheumatoid arthritis. *Arthritis Res Ther* 7:R569, 2005
25. van Kuijk AW et al: Detailed analysis of the cell infiltrate and the expression of mediators of synovial inflammation and joint destruction in the

- synovium of patients with psoriatic arthritis: Implications for treatment. *Ann Rheum Dis* **65**:1551, 2006
26. Helliwell PS et al: Joint symmetry in early and late rheumatoid and psoriatic arthritis: Comparison with a mathematical model. *Arthritis Rheum* **43**:865, 2000
 27. Buskila D et al: Patients with rheumatoid arthritis are more tender than those with psoriatic arthritis. *J Rheumatol* **19**:1115, 1992
 28. Chandran V et al: Axial psoriatic arthritis: Update on a longterm prospective study. *J Rheumatol* **36**:2744, 2009
 29. Taylor WJ, Zmierzczak HG, Helliwell PS: Problems with the definition of axial and peripheral disease patterns in psoriatic arthritis. *J Rheumatol* **32**:974, 2005
 30. Gelfand JM et al: Epidemiology of psoriatic arthritis in the population of the United States. *J Am Acad Dermatol* **53**:573, 2005
 31. Gladman DD et al: Psoriatic arthritis (PSA)—An analysis of 220 patients. *Q J Med* **62**:127, 1987
 32. Zeboulon N, Dougados M, Gossec L: Prevalence and characteristics of uveitis in the spondyloarthropathies: A systematic literature review. *Ann Rheum Dis* **67**:955, 2008
 33. Kane D: The role of ultrasound in the diagnosis and management of psoriatic arthritis. *Curr Rheumatol Rep* **7**:319, 2005
 34. McQueen FM, Dalbeth N, Doyle A: MRI in psoriatic arthritis: Insights into pathogenesis and treatment response. *Curr Rheumatol Rep* **10**:303, 2008
 35. Gladman DD: Natural history of psoriatic arthritis. *Baillieres Clin Rheumatol* **8**:379, 1994
 36. Gladman DD et al: Longitudinal study of clinical and radiological progression in psoriatic arthritis. *J Rheumatol* **17**:809, 1990
 37. Kane D et al: A prospective, clinical and radiological study of early psoriatic arthritis: An early synovitis clinic experience. *Rheumatology (Oxford)* **42**:1460, 2003
 38. Gladman DD, Farewell VT, Nadeau C: Clinical indicators of progression in psoriatic arthritis: Multivariate relative risk model. *J Rheumatol* **22**:675, 1995
 39. Torre Alonso JC et al: Psoriatic arthritis (PA): A clinical, immunological and radiological study of 180 patients. *Br J Rheumatol* **30**:245, 1991
 40. McHugh NJ, Balachrishnan C, Jones SM: Progression of peripheral joint disease in psoriatic arthritis: A 5-yr prospective study. *Rheumatology (Oxford)* **42**:778, 2003
 41. Bond SJ et al: Predictors for radiological damage in psoriatic arthritis: Results from a single centre. *Ann Rheum Dis* **66**:370, 2007
 42. Gladman DD et al: Remission in psoriatic arthritis. *J Rheumatol* **28**:1045, 2001
 43. Husted JA et al: A longitudinal study of the effect of disease activity and clinical damage on physical function over the course of psoriatic arthritis: Does the effect change over time? *Arthritis Rheum* **56**:840, 2007
 44. Husted JA et al: Health-related quality of life of patients with psoriatic arthritis: A comparison with patients with rheumatoid arthritis. *Arthritis Rheum* **45**:151, 2001
 45. Reich K et al: Epidemiology and clinical pattern of psoriatic arthritis in Germany: A prospective interdisciplinary epidemiological study of 1511 patients with plaque-type psoriasis. *Br J Dermatol* **160**:1040, 2009
 46. Gladman DD et al: Cardiovascular morbidity in psoriatic arthritis. *Ann Rheum Dis* **68**:1131, 2009
 47. Gelfand JM et al: Risk of myocardial infarction in patients with psoriasis. *JAMA* **296**:1735, 2006
 48. Tam LS et al: Subclinical carotid atherosclerosis in patients with psoriatic arthritis. *Arthritis Rheum* **59**:1322, 2008
 49. Ali Y et al: Improved survival in psoriatic arthritis with calendar time. *Arthritis Rheum* **56**:2708, 2007
 50. Gladman DD et al: Mortality studies in psoriatic arthritis: Results from a single outpatient center. II. Prognostic indicators for death. *Arthritis Rheum* **41**:1103, 1998
 51. Siannis F et al: Clinical and radiological damage in psoriatic arthritis. *Ann Rheum Dis* **65**:478, 2006
 52. Anandarajah AP, Ritchlin CT: The diagnosis and treatment of early psoriatic arthritis. *Nat Rev Rheumatol* **5**:634, 2009
 53. Qureshi AA et al: Psoriatic arthritis screening tools. *J Rheumatol* **35**:1423, 2008
 54. Raza N, Hameed A, Ali MK: Detection of subclinical joint involvement in psoriasis with bone scintigraphy and its response to oral methotrexate. *Clin Exp Dermatol* **33**:70, 2008
 55. Erdem CZ et al: MR imaging features of foot involvement in patients with psoriasis. *Eur J Radiol* **67**:521, 2008
 56. de Vlam K, Gottlieb AB, Fitzgerald O: Biological biomarkers in psoriatic disease. A review. *J Rheumatol* **35**:1443, 2008

57. Chandran V et al: Soluble biomarkers differentiate patients with psoriatic arthritis from those with psoriasis without arthritis. *Rheumatology (Oxford)* **49**:1399, 2010
58. Anandarajah AP et al: The effect of etanercept on osteoclast precursor frequency and enhancing bone marrow oedema in patients with psoriatic arthritis. *Ann Rheum Dis* **67**:296, 2008
59. Wilson FC et al: Incidence and clinical predictors of psoriatic arthritis in patients with psoriasis: A population-based study. *Arthritis Rheum* **61**:233, 2009
60. Nash P et al: Seronegative spondyloarthropathies: To lump or split? *Ann Rheum Dis* **64**(Suppl. 2):ii9, 2005
61. Fredriksson T, Pettersson U: Severe psoriasis—Oral therapy with a new retinoid. *Dermatologica* **157**:238, 1978
62. Cassell SE et al: The modified Nail Psoriasis Severity Index: Validation of an instrument to assess psoriatic nail involvement in patients with psoriatic arthritis. *J Rheumatol* **34**:123, 2007
63. Helliwell PS et al: Development of an assessment tool for dactylitis in patients with psoriatic arthritis. *J Rheumatol* **32**:1745, 2005
64. Gladman DD et al: International spondyloarthritis interobserver reliability exercise—The INSPIRE study: II. Assessment of peripheral joints, enthesitis, and dactylitis. *J Rheumatol* **34**:1740, 2007
65. Gladman DD et al: International spondyloarthritis interobserver reliability exercise—The INSPIRE study: I. Assessment of spinal measures. *J Rheumatol* **34**:1733, 2007
66. Eder L et al: Predictors of Response to Intra-articular Steroid Injection in Psoriatic Arthritis. *Rheumatology (Oxford)* Published online Apr 13, 2010[PMID: 20388640]
67. Ravindran V, Scott DL, Choy EH: A systematic review and meta-analysis of efficacy and toxicity of disease modifying anti-rheumatic drugs and biological agents for psoriatic arthritis. *Ann Rheum Dis* **67**:855, 2008
68. Willkens RF et al: Randomized, double-blind, placebo controlled trial of low-dose pulse methotrexate in psoriatic arthritis. *Arthritis Rheum* **27**:376, 1984
69. Abu-Shakra M et al: Longterm methotrexate therapy in psoriatic arthritis: Clinical and radiological outcome. *J Rheumatol* **22**:241, 1995
70. Chandran V, Schentag CT, Gladman DD: Reappraisal of the effectiveness of methotrexate in psoriatic arthritis: Results from a longitudinal observational cohort. *J Rheumatol* **35**:469, 2008
71. Rosenberg P et al: Psoriasis patients with diabetes type 2 are at high risk of developing liver fibrosis during methotrexate treatment. *J Hepatol* **46**:1111, 2007
72. Clegg DO et al: Comparison of sulfasalazine and placebo in the treatment of psoriatic arthritis. A Department of Veterans Affairs Cooperative Study. *Arthritis Rheum* **39**:2013, 1996
73. Soriano ER, McHugh NJ: Therapies for peripheral joint disease in psoriatic arthritis. A systematic review. *J Rheumatol* **33**:1422, 2006
74. Rahman P et al: The use of sulfasalazine in psoriatic arthritis: A clinic experience. *J Rheumatol* **25**:1957, 1998
75. Kaltwasser JP et al: Efficacy and safety of leflunomide in the treatment of psoriatic arthritis and psoriasis: A multinational, double-blind, randomized, placebo-controlled clinical trial. *Arthritis Rheum* **50**:1939, 2004
76. Salvarani C et al: A comparison of cyclosporine, sulfasalazine, and symptomatic therapy in the treatment of psoriatic arthritis. *J Rheumatol* **28**:2274, 2001
77. Fraser AD et al: A randomised, double blind, placebo controlled, multicentre trial of combination therapy with methotrexate plus ciclosporin in patients with active psoriatic arthritis. *Ann Rheum Dis* **64**:859, 2005
78. Carette S et al: A double-blind placebo-controlled study of auranofin in patients with psoriatic arthritis. *Arthritis Rheum* **32**:158, 1989
79. Man HW et al: Discovery of (S)-N-[2-[1-(3-ethoxy-4-methoxyphenyl)-2-methanesulfonylethyl]-1,3-dioxo-2,3-dihydro-1H-isoindol-4-yl] acetamide (apremilast), a potent and orally active phosphodiesterase 4 and tumor necrosis factor- α inhibitor. *J Med Chem* **52**:1522, 2009
80. Schett G et al: Apremilast is active in the treatment of psoriatic arthritis (PsA). *Arthritis Rheum* **60**:S471, 2009
81. Mease PJ et al: Etanercept treatment of psoriatic arthritis: safety, efficacy, and effect on disease progression. *Arthritis Rheum* **50**:2264, 2004
82. Sterry W et al: Comparison of two etanercept regimens for treatment of psoriasis and psoriatic arthritis: PRESTA randomised double blind multicentre trial. *BMJ* **340**:c147, 2010
83. Antoni C et al: Infliximab improves signs and symptoms of psoriatic arthritis: Results of the IMPACT 2 trial. *Ann Rheum Dis* **64**:1150-1157, 2005
84. Van Der Heijde D et al: Infliximab inhibits progression of radiographic damage in patients with active psoriatic arthritis through one year of

- treatment: Results from the induction and maintenance psoriatic arthritis clinical trial 2. *Arthritis Rheum* **56**:2698, 2007
85. Mease PJ et al: Adalimumab for the treatment of patients with moderately to severely active psoriatic arthritis: Results of a double-blind, randomized, placebo-controlled trial. *Arthritis Rheum* **52**:3279, 2005
 86. Kavanaugh A et al: Golimumab, a new human tumor necrosis factor alpha antibody, administered every four weeks as a subcutaneous injection in psoriatic arthritis: Twenty-four-week efficacy and safety results of a randomized, placebo-controlled study. *Arthritis Rheum* **60**:976, 2009
 87. Kavanaugh A, Van Der Heijde D, Gladman D: Golimumab inhibits progression of radiographic damage in patients with psoriatic arthritis: 52 week results from the GO-REVEAL Study. *Arthritis Rheum* **60**:3861, 2009
 88. Saad AA et al: Risks and benefits of tumor necrosis factor-alpha inhibitors in the management of psoriatic arthritis: Systematic review and metaanalysis of randomized controlled trials. *J Rheumatol* **35**:883, 2008
 89. Carmona L, Gómez-Reino JJ: BIOBADASER Group. Survival of TNF antagonists in spondylarthritis is better than in rheumatoid arthritis. Data from the Spanish registry BIOBADASER. *Arthritis Res Ther* **8**:R72, 2006
 90. Heiberg MS et al: The comparative one-year performance of anti-tumor necrosis factor alpha drugs in patients with rheumatoid arthritis, psoriatic arthritis, and ankylosing spondylitis: Results from a longitudinal, observational, multicenter study. *Arthritis Rheum* **59**:234, 2008
 91. Kristensen LE et al: Efficacy and tolerability of anti-tumour necrosis factor therapy in psoriatic arthritis patients: Results from the South Swedish Arthritis Treatment Group register. *Ann Rheum Dis* **67**:364, 2008
 92. Saad AA et al: Persistence with anti-tumour necrosis factor therapies in patients with psoriatic arthritis: Observational study from the British Society of Rheumatology Biologics Register. *Arthritis Res Ther* **11**:R52, 2009
 93. Papp KA et al: Efficacy and safety of ustekinumab, a human interleukin-12/23 monoclonal antibody, in patients with psoriasis: 52-week results from a randomised, double-blind, placebo-controlled trial (PHOENIX 2). *Lancet* **371**:1675, 2008
 94. Gottlieb A et al: Ustekinumab, a human interleukin 12/23 monoclonal antibody, for psoriatic arthritis: Randomised, double-blind, placebo-controlled, crossover trial. *Lancet* **373**:633, 2009
 95. Ellis CN, Krueger GG; Alefacept Clinical Study Group. Treatment of chronic plaque psoriasis by selective targeting of memory effector T lymphocytes. *N Engl J Med* **345**:248, 2001
 96. Mease PJ, Gladman DD, Keystone EC; Alefacept in psoriatic arthritis study group. Alefacept in combination with methotrexate for the treatment of psoriatic arthritis: Results of a randomized, double-blind, placebo-controlled study. *Arthritis Rheum* **54**:1638, 2006
 97. Kremer JM et al: Treatment of rheumatoid arthritis by selective inhibition of T-cell activation with fusion protein CTLA4Ig. *N Engl J Med* **349**:1907, 2003
 98. Mease P et al: Abatacept in psoriatic arthritis: results of a phase ii study. *Arthritis Rheum* **60**:S472, 2009
 99. Zangger P, Gladman DD, Bogoch ER: Musculoskeletal surgery in psoriatic arthritis. *J Rheumatol* **25**:725, 1998
 100. Zangger P et al: Type and outcome of reconstructive surgery for different patterns of psoriatic arthritis. *J Rheumatol* **27**:967, 2000
 101. Ritchlin CT et al: Treatment recommendations for psoriatic arthritis. *Ann Rheum Dis* **68**:1387, 2009