2012 Canadian Guidelines for the diagnosis and management of fibromyalgia syndrome: Executive summary

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Although fibromyalgia (FM) has been recognized as a clinical syndrome for the past two decades, recent neurophysiological evidence of pain dysregulation has provided scientific validation. The controversy surrounding FM stems from the subjective nature of complaints and lack of any defining abnormal biological findings (1,2). This newer understanding has prompted clinical study and exploration of newer treatment options. In this spirit, the 2012 Canadian Guidelines for the diagnosis and management of FM syndrome were developed to provide directions for optimal patient care that align with the best available evidence (3). The clinical challenge remains because the cause of, the ideal treatment and any potential cures for FM are unknown. In addition, diagnosis is entirely dependent on patient report of symptoms and functional impairment, without any defining physical or laboratory abnormality.

In addition to the pivotal symptom of chronic widespread pain, FM syndrome often includes fatigue, nonrestorative sleep, cognitive dysfunction and mood disorder, as well as variable somatic symptoms (4). Canadian prevalence rates are in the order of 2% to 3%, with females

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reportedly affected more commonly than males, but with likely underdiagnosis in males (5). Although it occurs most frequently in middle-age women, FM can also affect children, teenagers and elderly patients.

Diagnosis may be delayed for years, with increased health care costs related to excessive investigation, frequent health care visits and referral to multiple specialists. With direct health care costs for Quebec patients with FM estimated to be more than CAD $4,000 per patient per year, an amount 30% higher than non-FM patients, an improved understanding of FM by the health care community may reduce patient suffering as well as the economic burden of this condition (6).

While there is currently no cure for FM, ideal management will address the combination of symptoms that may be present. Treatments must focus on active patient participation toward achieving health-related goals and incorporate nonpharmacological strategies as a foundation. Pharmacological treatment may also be required in a patient-tailored approach, with attention devoted to the risk-benefit ratio of any medication.

The Guidelines comprise 46 recommendations developed and arranged according to the subsections of diagnosis, management and follow-up (Appendix 1). Although there is copious literature available addressing various aspects of FM, the level of evidence available, other than for more recent drug studies, is mostly poor or lacking completely, with more than two-thirds of the recommendations graded as either level D or consensus. These guidelines are presented as recommendations pertinent to patient care in Canada, graded according to the level of supporting evidence, with the objective to facilitate clinical care. They should be viewed as an aid in the care of patients with FM, taking into consideration the unique needs of the individual, and should not be interpreted as the rules by which each patient should be managed.

Process of guideline development

The Guidelines were developed at the request of the Canadian Pain

is the fallacy associated with the tender point examination, a mainly subjective technique that is not supported by sound scientific basis and has been fraught with controversy. Therefore, contrary to previous beliefs, examination of tender points should not be used to either confirm or validate a diagnosis of FM (2). There is a strong call for the reduction of both excessive investigation and referrals to multiple specialists. Only simple laboratory tests should be performed, consistent with routine good health care, to ensure that some other, easily identifiable condition is not overlooked. The guidelines also acknowledge that criteria for the diagnosis of FM, developed by the American College of Rheumatology in 1990 and revised in 2010, were primarily intended for research purposes and should not be used to confirm a clinical diagnosis in an individual patient.

The clinical evaluation combined with simple blood tests will rule out most conditions that can present with body pain such as endocrine disease (hypothyroidism), rheumatic conditions (early inflammatory arthritis or polymyalgia rheumatica), neurological disease (myopathy or multiple sclerosis) or drug-induced conditions (lipid-lowering agents, aromatase inhibitors). Any additional testing should be specifically driven by the clinical findings, but with prudence.

Therefore, these guidelines recommend a paradigm shift whereby the responsibility for the diagnosis and management of FM is moved away from the specialist, with care concentrated in the primary care setting (12). Early diagnosis will avoid unnecessary investigations, a cause for patient uncertainty that prolongs health care behaviours and fosters medicalization (13-15). Attention can then be focused toward symptom management, attainment of optimal health, and maintenance or improvement of function. New symptoms in a patient with a previous diagnosis of FM should be evaluated according to good clinical standards, with the understanding that FM patients may eventually develop other illnesses unrelated to FM.

An elementary understanding of the neurophysiological concepts present in FM will reassure health care professionals of the validity of this condition and will also help guide rational treatment choices. Abnormalities in pain processing have been identified at various levels in the peripheral, central and sympathetic nervous systems, as well as the hypothalamo-pituitary-adrenal axis stress-response system, but these findings remain in the research domain and are not available for routine patient care (16-18).

The cause of FM is unknown. Familial studies have identified the possibility of genetic predisposition, with up to one-quarter of relatives of FM patients reporting chronic widespread pain (19,20). While no individual gene has been associated with FM, there is increasing evidence of a polygenic effect, with genes affecting serotoninergic, catecholaminergic and dopaminergic systems likely playing a role (21,22). Genetic factors may, therefore, predispose some individuals to a dysfunctional stress response via the hypothalamo-pituitary axis, and may be the setting whereby a triggering event may initiate clinical symptoms (23). Psychosocial distress, as well as early life adversity including abuse, have been shown to predict the onset of chronic, widespread pain (24,25). Primed by genetic factors, a physical or psychological trigger, as reported for nearly one-quarter to one-third of individuals, may lead to clinical expression of FM (26). Therefore, the expression of FM may be explained by a biopsychosocial model in which predisposition, triggering and other factors, such as depression, maladaptive coping or fear-avoidance behaviour, contribute to chronicity.

The management of patients with FM

In the absence of a cure for FM, treatment recommendations should be directed at reduction of symptoms and fostering optimal function, with patient outcome goals clearly defined. Symptom-based management, taking into consideration the heterogeneous nature of this condition, can help to direct a patient-tailored, multimodal approach (27). Ideal management requires active patient participation in health-related practices and will centre on nonpharmacological strategies. Pharmacological treatments may be helpful for some patients, but with a need to evaluate efficacy and side effect profile (28). With average responses to therapy mainly modest at best, the essence of current evidence is that there is no 'gold standard' of treatment. Self-efficacy, attention to psychological distress and adherence to global treatment recommendations, strategies that may be augmented by cognitive behavioural therapy, will favourably influence outcome (29). Patients should be encouraged to be self-sufficient, develop good coping skills and pursue as normal a life pattern as possible.

economic outcome, this may not be applicable for many women with FM who may be homemakers (42).

FM is a condition associated with considerable direct and indirect health care costs. A positive diagnosis may reduce costs by reducing tests, imaging, medication use, specialist referrals and primary care visits (14). In the United States, the cost for service utilization in an individual FM patient was more than US $2,000 in 1997, with reports in the order of CAD $4,000 per year per patient for Canada and Europe (6,43-45). While nonpharmacological therapies have been demonstrated to be an effective and necessary component of treatment, they do, however, incur costs that are threefold greater than for pharmacological therapies. Comorbidities, such as depression, have also been shown to increase costs, warranting attention (44). Education and improved knowledge translation will enable health care professionals to diagnose and manage individuals with FM more effectively with associated cost containment.

Practice recommendations for FM: Section 3
The outcome

Patient follow-up

36. Clinical follow-up should be dependent on the judgement of the physician or health care team, with more frequent visits likely during the initial phase of management or until symptoms are stabilized (level 5, consensus).
37. In the continued care of a patient with FM, the development of a new symptom requires clinical evaluation to ensure that symptoms are not due to some other medical illness (level 5, consensus).
38. Patients should be informed that the outcome in many individuals is favourable even if symptoms of FM tend to increase and decrease over time (level 3, grade B) (92-94).
39. Patients who have experienced previous adverse lifetime events that have impacted on psychological well-being and have not been effectively addressed should be offered appropriate support to facilitate attaining health-related outcome goals (level 5, consensus).
40. Physicians should be alert that factors such as passivity, poor internal locus of control and prominent mood disorder may have a negative influence on outcome (level 5, consensus).

Outcome tools

41. Outcome can be measured by narrative report of symptom status or patient global impression of change, without need for more complex questionnaires (level 3, grade C) (36,37).
42. Patient goals and their levels of achievement should be recorded as a useful strategy to follow outcome (level 5, consensus).
43. Tender point examination should not be used as an outcome measure (level 3, grade C) (39).

Work recommendations and health cost containment

44. Physicians should encourage patients to remain in the workforce and, if necessary, may provide recommendations that could help maintain optimal productivity because outcome is generally more favourable for those who are employed (level 3, grade C) (95).
45. Patients with FM on a prolonged sick leave should be encouraged to participate in an appropriate rehabilitation program with focus on improving function, including return to work if possible (level 5, grade D) (42).
46. In persons with FM, other comorbid conditions including depression should be recognized and addressed to reduce health care costs (level 3, grade C) (96,97).

REFERENCES

1. Wolfe F, Smythe HA, Yunus MB, et al. The American College of Rheumatology 1990. Criteria for the classification of fibromyalgia. Report of the Multicenter Criteria Committee. Arthritis Rheum 1990;33:160-72.
2. Wolfe F, Clauw DJ, Fitzcharles M-A, et al. The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia and measurement of symptom severity. Arthritis Care Res 2010;62:600-10.
3. Fitzcharles M-A, Ste-Marie PA, Goldenberg DL, et al. 2012 Canadian Guidelines for the diagnosis and management of fibromyalgia syndrome. <www.canadianpainsociety.ca/pdf/Fibromyalgia_Guidelines_2012.pdf> (Accessed September 21, 2012)
4. Mease P, Arnold LM, Choy EH, et al. Fibromyalgia syndrome module at OMERACT 9: Domain construct. J Rheumatol 2009;36:2318-29.
5. McNally JD, Matheson DA, Bakowsky VS. The epidemiology of self-reported fibromyalgia in Canada. Chronic Dis Can 2006;27:9-16.
6. Lachaine J, Beauchemin C, Landry P-A. Clinical and economic characteristics of patients with fibromyalgia syndrome. Clin J Pain 2010;26:284-90.
7. Carville SF, Arendt-Nielsen S, Bliddal H, et al. EULAR evidence-based recommendations for the management of fibromyalgia syndrome. Ann Rheum Dis 2008;67:536-41.
8. Hauser W, Eich W, Herrmann M, Nutzinger DO, Schiltenwolf M, Henningsen P. Fibromyalgia syndrome: Classification, diagnosis, and treatment. Dtsch 2009;106:383-91.
9. Burckhardt C, Goldenberg D, Crofford L, et al. Guideline for the management of fibromyalgia syndrome. Pain in adults and children. APS Clinical practice guideline Series No. 4 Glenview, Illinois: American Pain Society; 2005.
10. Howick J, Chalmers I, Glasziou P, et al. The Oxford 2011 Table of Evidence. Oxford Centre for Evidence-Based Medicine. <www.cebm.net/index.aspx?o=5653?> (Accessed 2012)
11. Walitt B, Fitzcharles MA, Hassett AL, Katz RS, Hauser W, Wolfe F. The longitudinal outcome of fibromyalgia: A study of 1555 patients. J Rheumatol 2011;38:2238-46.
12. Shir Y, Fitzcharles MA. Should rheumatologists retain ownership of fibromyalgia? J Rheumatol 2009;36:667-70.
13. Hughes G, Martinez C, Myon E, Taieb C, Wessely S. The impact of a diagnosis of fibromyalgia on health care resource use by primary care patients in the UK: An observational study based on clinical practice. Arthritis Rheum 2006;54:177-83.
14. Annemans L, Wessely S, Spaepen E, et al. Health economic consequences related to the diagnosis of fibromyalgia syndrome. Arthritis Rheum 2008;58:895-902.
15. Annemans L, Le Lay K, Taieb C. Societal and patient burden of fibromyalgia syndrome. Pharmacoeconomics 2009;27:547-59.
16. Perrot S, Dickenson AH, Bennett RM. Fibromyalgia: Harmonizing science with clinical practice considerations. Pain Pract 2008;8:177-89.
17. Abeles AM, Pillinger MH, Solitar BM, Abeles M. Narrative review: The pathophysiology of fibromyalgia. Ann Intern Med 2007;146:726-34.
18. Price DD, Staud R. Neurobiology of fibromyalgia syndrome. J Rheumatol Suppl 2005;75:22-8.
19. Buskila D, Neumann L. Fibromyalgia syndrome (FM) and nonarticular tenderness in relatives of patients with FM. J Rheumatol 1997;24:941-4.
20. Buskila D, Neumann L, Hazanov I, Carmi R. Familial aggregation in the fibromyalgia syndrome. Semin Arthritis Rheum 1996;26:605-11.
21. Smith SB, Maixner DW, Fillingim RB, et al. Large candidate gene association study reveals genetic risk factors and therapeutic targets for fibromyalgia. Arthritis Rheum 2012;64:584-93.
22. Buskila D, Sarzi-Puttini P. Biology and therapy of fibromyalgia. Genetic aspects of fibromyalgia syndrome. Arthritis Res Ther 2006;8:218.
23. McBeth J, Silman AJ, Gupta A, et al. Moderation of psychosocial risk factors through dysfunction of the hypothalamic-pituitary-adrenal stress axis in the onset of chronic widespread musculoskeletal pain: Findings of a population-based prospective cohort study. Arthritis Rheum 2007;56:360-71.
24. Gupta A, Silman AJ, Ray D, et al. The role of psychosocial factors in predicting the onset of chronic widespread pain: Results from a prospective population-based study. Rheumatology (Oxford) 2007;46:666-71.
25. Boisset-Pioro MH, Esdaile JM, Fitzcharles MA. Sexual and physical abuse in women with fibromyalgia syndrome. Arthritis Rheum 1995;38:235-41.
26. Greenfield S, Fitzcharles MA, Esdaile JM. Reactive fibromyalgia syndrome. Arthritis Rheum 1992;35:678-81.
27. Boomershine CS, Crofford LJ. A symptom-based approach to pharmacologic management of fibromyalgia. Nat Rev Rheumatol 2009;5:191-9.
28. Rossy LA, Buckelew SP, Dorr N, et al. A meta-analysis of fibromyalgia treatment interventions. Ann Behav Med 1999;21:180-91.
29. Dobkin PL, Liu A, Abrahamowicz M, et al. Predictors of disability and pain six months after the end of treatment for fibromyalgia. Clin J Pain 2010;26:23-9.
30. Kroese ME, Schulpen GJ, Sonneveld HM, Vrijhoef HJ. Therapeutic approaches to fibromyalgia in the Netherlands: A comparison between 1998 and 2005. J Eval Clin Pract 2008;14:321-5.

31. Kroese ME, Schulpen GJ, Bessems MC, et al. Substitution of specialized rheumatology nurses for rheumatologists in the diagnostic process of fibromyalgia: A randomized controlled trial. Arthritis Rheum 2008;59:1299-305.
32. Buskila D, Neumann L, Sibirski D, Shvartzman P. Awareness of diagnostic and clinical features of fibromyalgia among family physicians. Fam Pract 1997;14:238-41.
33. Shleyfer E, Jotkowitz A, Karmon A, Nevzorov R, Cohen H, Buskila D. Accuracy of the diagnosis of fibromyalgia by family physicians: Is the pendulum shifting? J Rheumatol 2009;36:170-3.
34. Boyer AL, Mira MAP, Calatayud NP, Lopez-Roig S, Cantero MCT. Comparing fibromyalgia patients from primary care and rheumatology settings: Clinical and psychosocial features. Rheumatol Int 2009;29:1151-60
35. Garcia-Campayo J, Magdalena J, Magallon R, Fernandez-Garcia E, Salas M, Andres E. A meta-analysis of the efficacy of fibromyalgia

81. Biasi G, Manca S, Manganelli S, Marcolongo R. Tramadol in the fibromyalgia syndrome: A controlled clinical trial versus placebo. Int J Clin Pharmacol Res 1998;18:13-9.
82. Furlan AD, Reardon R, Weppler C. Opioids for chronic noncancer pain: A new Canadian practice guideline. CMAJ 2010;182:923-30.
83. Skrabek RQ, Galimova L, Ethans K, Perry D. Nabilone for the treatment of pain in fibromyalgia. J Pain 2008;9:164-73.
84. Ware MA, Fitzcharles MA, Joseph L, Shir Y. The effects of nabilone on sleep in fibromyalgia: Results of a randomized controlled trial. Anesth Analg 2010;110:604-10.
85. Lynch ME, Campbell F. Cannabinoids for treatment of chronic non-cancer pain; a systematic review of randomized trials. Br J Clin Pharmacol 2011;72:735-44.
86. Goldenberg DL, Clauw DJ, Fitzcharles MA. New concepts in pain research and pain management of the rheumatic diseases. Semin Arthritis Rheum 2011;41:319-34.
87. Uceyler N, Hauser W, Sommer C. A systematic review on the effectiveness of treatment with antidepressants in fibromyalgia syndrome. Arthritis Rheum 2008;59:1279-98.
88. Hauser W, Bernardy K, Uceyler N, Sommer C. Treatment of fibromyalgia syndrome with antidepressants: A meta-analysis. JAMA 2009;301:198-209.
89. Holtedahl R. [Questionable documentation of the effect of pregabalin in fibromyalgia]. Tidsskr Nor Laegeforen 2010;130:1032-6.
90. Hauser W, Bernardy K, Uceyler N, Sommer C. Treatment of fibromyalgia syndrome with gabapentin and pregabalin – a meta-analysis of randomized controlled trials. Pain 2009;145:69-81.
91. Moore RA, Straube S, Wiffen PJ, Derry S, McQuay HJ. Pregabalin for acute and chronic pain in adults. Cochrane Database Syst Rev 2009(3):CD007076.
92. Granges G, Zilko P, Littlejohn GO. Fibromyalgia syndrome: Assessment of the severity of the condition 2 years after diagnosis. J Rheum 1994;21:523-9.
93. Fitzcharles M-A, Costa DD, Poyhia R. A study of standard care in fibromyalgia syndrome: A favorable outcome. J Rheumatol 2003;30:154-9.
94. Martinez JE, Ferraz MB, Sato EI, Atra E. Fibromyalgia versus rheumatoid arthritis: A longitudinal comparison of the quality of life. J Rheumatol 1995;22:270-4.
95. Reisine S, Fifield J, Walsh S, Forrest DD. Employment and health status changes among women with fibromyalgia: A five-year study. Arthritis Rheum 2008;59:1735-41.
96. Walen HR, Cronan PA, Bigatti SM. Factors associated with healthcare costs in women with fibromyalgia. Am J Manag Care 2001;7 Spec No:SP39-47.
97. Robinson RL, Birnbaum HG, Morley MA, Sisitsky T, Greenberg PE, Wolfe F. Depression and fibromyalgia: Treatment and cost when diagnosed separately or concurrently. J Rheumatol 2004;31:1621-9.