Canadian Pain Society and Canadian Rheumatology Association Recommendations for Rational Care of Persons with Fibromyalgia. A Summary Report

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ABSTRACT. ***Objective.*** To summarize the development of evidence-based guidelines for the clinical care of persons with fibromyalgia (FM), taking into account advances in understanding of the pathogenesis of FM, new diagnostic criteria, and new treatment options.

Methods. Recommendations for diagnosis, treatment, and patient followup were drafted according to the classification system of the Oxford Centre for Evidence-Based Medicine, and following review were endorsed by the Canadian Rheumatology Association and the Canadian Pain Society.

Results. FM is a polysymptomatic syndrome presenting a spectrum of severity, with a pivotal symptom of body pain. FM is a positive clinical diagnosis, not a diagnosis of exclusion, and not requiring specialist confirmation. There are no confirmatory laboratory tests, although some investigation may be indicated to exclude other conditions. Ideal care is in the primary care setting, incorporating nonpharmacologic and pharmacologic strategies in a multimodal approach with active patient participation. The treatment objective should be reduction of symptoms, but also improved function using a patient-tailored treatment approach that is symptom-based. Self-management strategies combining good lifestyle habits and fostering a strong locus of control are imperative. Medications afford only modest relief, with doses often lower than suggested, and drug combinations used according to clinical judgment. There is a need for continued reassessment of the risk-benefit ratio for any drug treatment. Outcome should be aimed toward functioning within a normal life pattern and any culture of disablement should be discouraged.

Conclusion. These guidelines should provide the health community with reassurance for the global care of patients with FM with the aim of improving patient outcome by reducing symptoms and maintaining function. (First Release July 1 2013; J Rheumatol 2013;40:1388–93; doi:10.3899/jrheum.130127)

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Fibromyalgia (FM) is a condition of generalized body pain without a known cause or cure. Clinical care of patients with FM is challenging in view of uncertainties in many areas. The large volume of publications in recent years addressing aspects of FM has added to this quandary and requires critical review. FM is recognized as a polysympto-

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matic syndrome that has pain as the predominant symptom. Understanding in the past 2 decades has recognized the presence of associated symptoms of fatigue, nonrestorative sleep, cognitive dysfunction, and mood disorder, as well as other somatic symptoms[1]. FM represents a spectrum of severity within and between patients, with some experiencing only mildly troublesome symptoms, whereas others report considerable suffering. The challenge presented by FM since formal recognition by the American College of Rheumatology (ACR) in 1990, and again in 2010, arises because of the subjective character of symptoms, absence of a diagnostic test, modest response to treatments, and at times, patient reports of important functional disability[2,3].

Because previous guidelines focused mainly on the management of FM and were based on literature searches up to December 2006, updating is required[4,5,6]. There is also a need for guidance that goes beyond management, and that also incorporates diagnosis and patient trajectory.

We consolidated this information to develop evidence-based recommendations that may aid in the day-to-day management of patients with FM. The current recommendations were developed by adherence to evidence-based standards and do not necessarily follow a step-by-step approach in pharmacologic management, but instead approach FM from a global concept, taking into account all factors that may be operative in an individual patient.

MATERIALS AND METHODS

Needs assessment. The recommendations summarized here are based on 2012 Canadian Guidelines for the Diagnosis and Management of Fibromyalgia Syndrome (available from: http://rheum.ca/en/publications/cra_fm_guidelines), which were developed by the Canadian Fibromyalgia Guidelines Committee and endorsed by the Canadian Pain Society and the Canadian Rheumatology Association. Briefly, an expert panel of 139 Canadian healthcare professionals representing a broad range of healthcare disciplines was convened at 8 locations across Canada to examine issues pertaining to FM. Following a 4-h information and discussion session, a series of questions addressing current understanding, knowledge gaps, uncertainties, and challenges in the clinical care of FM was developed. The target group for this guideline is all Canadian healthcare professionals who treat patients with FM.

An executive committee for the guideline group formed the Canadian Fibromyalgia Guidelines Committee (CFGC), a multidisciplinary team representing healthcare professionals from relevant fields managing FM, a patient representative, an external international expert, and a research coordinator. All CFGC members are listed here as authors, had access to all data, and participated in the data compilation and analysis, and in the writing of this report. No representatives of pharmaceutical companies were involved in the guideline development.

Scope of literature search, strategy, and document revision. On the basis of the questions generated, a comprehensive literature search was conducted at the McGill University Health Sciences library. Databases searched were Embase, Medline, Psychinfo, PubMed, and the Cochrane Library within a 20-year timeframe from 1990 to July 2010. The details of individual search strategies were recorded. A manual search from the references cited by original studies, reviews, and evidence-based guidelines was also used. Data were extracted independently according to a predetermined pro-forma and then cross-checked. Evidence was graded according to the strength of literature, and recommendation statements were drafted. The level of evidence and the grade of recommendations were assigned according to the classification system of the Oxford Centre for Evidence-Based Medicine, and the guideline document was prepared in accord with the principles outlined[7].

Recommendation development. Recommendations were drafted, assigned a level of evidence, and graded by the CFGC. They were then submitted for voting through the Internet to the 35 members who form the National Fibromyalgia Guidelines Advisory Panel. Recommendations with 80% approval were accepted. Eleven recommendations not passing the first vote were modified according to suggestions, and submitted to a second vote, and all achieved approval at the second vote.

The entire document was reviewed by an external expert (DLG), the first author of the American Pain Society FM guidelines, who was then invited to become a member of the CFGC. The guideline document was submitted to the Therapeutics Committee of the Canadian Rheumatology Association (CRA) and the Executive Committee of the Canadian Pain Society (CPS) for peer review. Following review conducted according to the Appraisal of Guidelines, Research and Evaluation in Europe (AGREE) II Score Sheet guideline appraisal tool, the guideline document was edited to its final form. The final document, including the 46 recommendations, was endorsed by both professional bodies, and will be in their governance for the updating process in 2015. The guidelines can be consulted on the CRA Web site (http://rheum.ca/en/publications/cra_fm_guidelines).

RESULTS

Clinical presentation of FM: base case. A woman in her mid-40s presents to her primary care physician with a complaint of body pain that has gradually developed over the past 6 months. The pain varies in location and intensity, and has not been associated with any identifiable physical abnormality. She believed that she had simply taken longer to recover from a bout of flu, but because symptoms have persisted she is concerned that her body pains may be a harbinger of a serious illness. Over-the-counter acetaminophen and ibuprofen have given only limited pain relief.

The physician should proceed by obtaining a composite history, taking note of any associated physical or psychological symptoms. A background history of previous health status or any previous pain condition should be obtained. Knowledge of current and past psychosocial circumstances will help to identify stressors that may influence the health status. The patient must be fully examined with specific attention to the musculoskeletal and neurological examination, to ensure the absence of physical findings that could account for the complaint of pain. It is likely that this woman is presenting with FM and direction regarding her clinical care is presented in the guideline document.

1. Clinical presentation

FM can be suspected when a patient, particularly a woman in her 40s, presents with diffuse body pain that has persisted for 3 months. At the onset, pain may be intermittent and localized, eventually becoming more persistent. Pain may vary in location and intensity from day to day, and can be modulated by factors such as weather or stress[8]. The pain may have a burning quality indicative of neuropathic pain[9].

Symptoms other than pain are common in FM and

contribute to global suffering[1,3]. Fatigue, which impairs function, occurs in over 90% of patients[1]. Although symptoms of chronic fatigue syndrome may overlap with FM, the prevalence of important pain is a distinguishing feature[10]. Similarly to fatigue, mood disorder is a common symptom, present in up to three-quarters of persons[11]. Sleep is fragmented, with patients complaining of difficulty falling asleep, frequent nighttime wakening, and awakening tired in the morning[12]. Other sleep disorders such as restless leg syndrome or sleep apnea may also occur. Concentration and memory difficulties are subjective complaints that have been confirmed by formal study[13]. Somatic symptoms such as irritable bowel syndrome, migraine headaches, severe menstrual pain, lower urinary tract symptoms, sexual dysfunction, myofascial facial pain, and temporomandibular pain may variably be present.

2. The physical examination and investigation

It is mandatory that all patients suspected of having FM be fully examined. The examination is expected to be normal except for some pressure tenderness of soft tissues, which may include pain report on examination of the tender points. The tender point count is no longer a required defining feature of FM, in accord with the 2010 ACR diagnostic criteria[3]. The examination should ensure absence of a physical abnormality such as swollen joints, muscle weakness, or objective neurological findings. Expression of pain or pain behaviors may be present but should not imply faking of symptoms[14].

Only simple laboratory testing to exclude conditions such as hypothyroidism, anemia, or an inflammatory condition (by measurement of erythrocyte sedimentation rate and C-reactive protein) is recommended for most patients. Any other testing should be prompted only by clinical findings. Excessive and repeated laboratory and radiographic testing will have a negative effect on the patient's well-being and will encourage medicalization.

3. Is there a differential diagnosis for FM?

Physicians are fearful of missing a diagnosis, especially when symptoms are purely subjective. Although seldom heralding another disease, FM may occur concomitantly with other medical conditions, or may even develop after an infectious illness[15]. Illnesses that may present similarly to FM may be grouped into musculoskeletal, neurological, psychiatric/psychological, or drug-related categories[15].

Although generalized body pain may occur in the early stage of an inflammatory rheumatic condition, identifiable physical or laboratory abnormalities will soon develop[16]. Similarly, neurological conditions such as multiple sclerosis, neuropathies, and myopathies, or endocrine conditions such as hypothyroidism can masquerade as FM. Psychological disorders to remember include depression, borderline personality, and persons who are drug-seeking and present pain as a means to procure drugs. Medications commonly known to cause body pain include lipid-lowering agents, aromatase inhibitors, and bisphosphonates.

4. Management strategies for patients with FM

Although there is a plethora of publications describing varied treatments for FM, only a limited number of studies are of sufficiently high quality to provide meaningful direction. The health community can rightly be puzzled when presented with treatment options that include woolen underwear, oil massage with exercise, transcranial direct current stimulation, Farabloc, intravenous micronutrient therapy using Myers' cocktail, and many others. We have therefore endeavored to provide practical guidance regarding treatment options by applying evidence-based standards with common sense and practical experience.

Treatment plans should incorporate self-management techniques, goal-setting, and healthy lifestyle habits, acknowledging psychological distress when present. Symptom-based management, taking into account the heterogeneous expression of this condition, can help direct a patient-tailored approach[17]. Although there is no ideal treatment, a multimodal approach with cautiously selected drug therapy will provide some relief for most patients. Nonpharmacologic strategies that include regular exercise, stress reduction, and promotion of a strong internal locus of control form the cornerstone of treatment. Drug treatments alone offer only modest relief and require diligent monitoring with low-dose initiation and cautious upward titration. Medications that address more than one symptom may especially offer an advantage[18]. Targeting the most important symptom is a useful starting point, but with care to evaluate efficacy and side effect profile of drug treatments.

Drugs addressing pain extend from simple analgesics to the modern concept of pain-modulating agents in the anticonvulsant or antidepressant classes. Two drugs belonging to the latter 2 classes have Health Canada approval for FM treatment, although clinical experience and metaanalyses suggest that the effects are less impressive than those described in individual publications. Some drugs such as opioids or cannabinoids may be reported by patients to be useful, but without adequate study and concern about associated risks. Drug treatments addressing other symptoms of FM such as sleep disturbance, mood disorder, or fatigue have mostly not been specifically evaluated, but may be used according to clinical judgment. Drug-related adverse effects may mimic FM symptoms, leading to the misdirected clinical practice of addition of more medication.

5. How should patients with FM be followed?

Responsibility for the diagnosis and management of FM should now be shifted away from the specialist and concentrated in the primary care setting. A definitive diagnosis will

provide reassurance and facilitate management[19]. Specialist referral should be reserved only for those patients with atypical symptoms or particular challenges in management, but not for confirmation of the diagnosis[20,21]. It is acknowledged that collaboration among all healthcare professionals treating an individual patient will provide best patient care.

The ideal followup will depend on clinical judgment and the needs of the individual. Healthcare visits may be more frequent at treatment initiation, but should thereafter aim to be within usual norms for the population. Access to a healthcare team member such as a nurse will provide an added benefit for the patient and help ease the burden on the healthcare system[22]. New symptoms arising in the course of FM should be evaluated on merit. While not simply attributing any new symptom to FM, care should be taken to limit unnecessary investigations.

Clinical outcome can be measured by a simple narrative report of symptom status without need for use of specific questionnaires, which are better suited to the research environment. Global well-being or patient global impression of change, measured on a 7-point Likert scale, is a simple and meaningful outcome measurement applicable to clinical practice[23,24]. Documenting goals and levels of achievement also has concrete meaning for a patient. The tender point count is a clinically irrelevant outcome measurement that should not be used.

FM affects health-related quality of life (QOL) from multiple perspectives including physical functioning and emotional and psychological health, but without any reliable predictors of outcome[25]. Contrary to popular belief, outcome is not universally poor in the majority of patients, although symptoms do persist and fluctuate over time[26]. Factors that may affect outcome include personality traits such as catastrophizing, poor internal locus of control, uncontrolled depression, and extreme obesity[27]. Any new symptom requires appropriate clinical evaluation and should not immediately be attributed to FM.

6. What recommendations can be given regarding work and containment of healthcare costs?

Maintenance of function is as important a treatment objective as reduction of symptoms. Functioning does not apply only to persons in the workforce, but also for those working as homemakers. Although working patients with FM have generally less severe symptoms and better QOL than those unemployed, it cannot be extrapolated that remaining in the workforce improves health status[28]. Pacing or reasonable adjustments in the working environment may improve retention in employment[29,30]. Regularity in scheduling will encourage a steady routine and regular sleep pattern.

Treatment strategies to reduce healthcare costs have seldom been examined. Using prediction of cost analysis over 4 years in the United Kingdom, a diagnosis of FM reduced healthcare costs and resource utilization driven by fewer tests and less imaging, medication use, specialist referrals, and primary care visits, with this cost reduction further augmented by early diagnosis[31,32,33]. Even in the primary care setting, patients with FM incurred higher annual costs compared to a reference population of patients without FM[34]. This is particularly true for FM patients with other comorbidities, especially depression[35,36].

7. Prejudice and skepticism regarding the validity of FM

The knowledge that concrete abnormalities have been identified in the nervous system should provide confidence for the healthcare professional that FM is a valid condition and help to dispel the stigmatization that has previously surrounded this condition. Although the exact cause of FM is unknown, abnormalities in pain processing have been identified at various levels in the peripheral, central, and sympathetic nervous systems, as well as the hypothalamic-pituitary-adrenal axis stress response[18,37]. Family studies support the concept of some genetic contribution to the expression of FM, although no specific gene has been implicated[38,39]. Psychosocial distress, including early life adversity as well as abuse, has been associated with chronic widespread pain[40,41,42].

Although physicians are more comfortable with a biomedical paradigm that prioritizes diagnostics, the preponderance of evidence attesting to the validity of FM should provide reassurance. The individual patient's concept of illness as well as the perceived attitude of the healthcare team affects global well-being. Shared decision-making between patient and physician can improve the quality of interaction[43]. Patients often report dissatisfaction with the clinical encounter and seek a concrete somatic diagnosis, whereas the health team may be frustrated when patients seem preoccupied with physical symptoms[44,45]. Although discordance between patient and physician assessment of health perceptions has been reported, physicians have expressed the desire to comply with patients' wishes and avoid frustration[45,46].

DISCUSSION

These Canadian guidelines for FM were developed based on the best available evidence and with input from a multidisciplinary group of healthcare professionals with interest and experience in the care of persons with FM. Many challenges remain for the medical community concerning FM. Although at first the literature appears to be abundant, there is a paucity of high-quality evidence for many aspects of FM. This is most notable for diagnosis and management strategies other than for a few selected newer drug therapies, and also for continued care.

Even with these limitations, we believe that our process has adhered to the highest standards for guideline development, within the confines of the available literature.

Recommendations were drafted following the classification system of the Oxford Centre for Evidence-Based Medicine for assigning levels of evidence to the literature and grading of recommendations. We have also included information from other guidelines when available. Therefore, by combining the available evidence with clinical experience and common sense, we have endeavored to provide rational direction for the health community. Although evidence may be lacking in certain areas, this guidance is strengthened by the broad clinical experience of the guideline working group and advisory panel.

We have recommended a paradigm shift in a number of areas. In the first instance, we recommend that the diagnosis and responsibility of FM care be shifted away from the specialist and into the domain of the primary care physician. This recommendation is based on 2 premises. First, with the prevalence of FM reported as 3% of the population, manpower and fiscal issues will not allow for continued specialist care for the majority of these patients. Second, in view of an appreciation of the broad scope of FM care, which encompasses attention to mood and sleep disorder, the nuances of pain management, and the importance of psychosocial considerations, rheumatologists are probably no longer the best qualified physicians to provide the most effective care. The medical community is therefore obligated to seek the best qualified healthcare professional to care for these patients.

A second focus of these guidelines is the emphasis on nonpharmacological strategies, with importance given to active patient participation and maintenance of positive health-related practices. We have questioned the current mindset that drug therapy is a panacea for symptom control and have highlighted the importance of medication side effects contributing to symptom persistence. In the absence of evidence, clinical experience has allowed us to make recommendations such as reduced dosing or combination of medications. The third area that is novel is the requirement that the health community focus toward maintaining and improving function of patients, with a call to temper the culture of disablement and medicalization that has become evident in recent years. Finally, we have also acknowledged the economic burden of FM and called for containment of healthcare costs.

When Hauser and colleagues critically evaluated the 3 previous guidelines, it was noted that many inconsistencies existed related to criteria used for study inclusion, weighting systems, and composition of panels[47]. The focus of previous guidelines has also mostly addressed treatment rather than incorporating global care of patients with FM. The current guidelines differ, in that we have addressed diagnosis as well as clinical followup, and have made statements regarding the importance of continued work activity.

We acknowledge that there may not be universal agreement with all our recommendations, as FM has been a contentious condition over the past 2 decades. This criticism can be further substantiated in view of the lack of good evidence for many aspects of this guidance. Even so, we believe there is a responsibility for the medical community to develop some consistent approach to the care of persons with FM, keeping in mind the areas of contention, but within the best interests of patients and society.

Our objective has been to improve the care and health of patients with FM, but also to encourage a societal and fiscal responsibility. We believe that we have developed clinically applicable guidance that will provide confidence to the community of health workers in the care of patients with FM. It is hoped that the next few years will see more study in the hiatus areas and that future updating of the guidelines will be based on stronger quality of evidence.

REFERENCES

1. Mease P, Arnold LM, Choy EH, Clauw DJ, Crofford LJ, Glass JM, et al. Fibromyalgia syndrome module at OMERACT 9: domain construct. J Rheumatol 2009;36:2318-29.
2. 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. Report of the Multicenter Criteria Committee. Arthritis Rheum 1990;33:160-72.
3. Wolfe F, Clauw DJ, Fitzcharles M-A, Goldenberg DL, Katz RS, Mease P, et al. The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia and measurement of symptom severity. Arthritis Care Res 2010;62:600-10.
4. Carville SF, Arendt-Nielsen S, Bliddal H, Blotman F, Branco JC, Buskila D, et al. EULAR evidence-based recommendations for the management of fibromyalgia syndrome. Ann Rheum Dis 2008;67:536-41.
5. Hauser W, Eich W, Herrmann M, Nutzinger DO, Schiltenwolf M, Henningsen P. Fibromyalgia syndrome: classification, diagnosis, and treatment. Dtsch Arztebl Int 2009;106:383-91.
6. Burckhardt C, Goldenberg D, Crofford L, Gerwin R, Gowans S, Kackson D, et al. Guideline for the management of fibromyalgia syndrome. Pain in adults and children. APS clinical practice guideline series No. 4. Glenview, IL: American Pain Society; 2005.
7. Howick J, Chalmers I, Glasziou P, Greenhalgh T, Heneghan C, Liberati A, et al. The Oxford 2011 table of evidence. Oxford, UK: Oxford Centre for Evidence-Based Medicine. (Internet. Accessed May 16, 2013.) Available from: http://www.cebm.net/index.aspx?o=5653
8. Hagglund KJ, Deuser WE, Buckelew SP, Hewett J, Kay DR. Weather, beliefs about weather, and disease severity among patients with fibromyalgia. Arthritis Care Res 1994;7:130-5.
9. Rehm SE, Koroschetz J, Gockel U, Brosz M, Freynhagen R, Tolle TR, et al. A cross-sectional survey of 3035 patients with fibromyalgia: subgroups of patients with typical comorbidities and sensory symptom profiles. Rheumatology 2010;49:1146-52.
10. Yunus MB. Fibromyalgia and overlapping disorders: the unifying concept of central sensitivity syndromes [review]. Semin Arthritis Rheum 2007;36:339-56.
11. Epstein SA, Kay G, Clauw D, Heaton R, Klein D, Krupp L, et al. Psychiatric disorders in patients with fibromyalgia. A multicenter investigation. Psychosomatics 1999;40:57-63.
12. Moldofsky H. The significance of the sleeping-waking brain for the understanding of widespread musculoskeletal pain and fatigue in fibromyalgia syndrome and allied syndromes. Joint Bone Spine 2008;75:397-402.

13. Rodriguez-Andreu J, Ibanez-Bosch R, Portero-Vazquez A, Masramon X, Rejas J, Galvez R. Cognitive impairment in patients with fibromyalgia syndrome as assessed by the Mini-Mental State Examination. BMC Musculoskel Disord 2009;10:162.
14. Gervais RO, Russell AS, Green P, Allen LM 3rd, Ferrari R, Pieschl SD. Effort testing in patients with fibromyalgia and disability incentives. J Rheumatol 2001;28:1892-9.
15. Goldenberg DL. Diagnosis and differential diagnosis of fibromyalgia. Am J Med 2009;122 Suppl:S14-21.
16. Fitzcharles MA, Boulos P. Inaccuracy in the diagnosis of fibromyalgia syndrome: analysis of referrals. Rheumatology 2003;42:263-7.
17. Boomershine CS, Crofford LJ. A symptom-based approach to pharmacologic management of fibromyalgia. Nat Rev Rheumatol 2009;5:191-9.
18. Perrot S, Dickenson AH, Bennett RM. Fibromyalgia: harmonizing science with clinical practice considerations. Pain Practice 2008;8:177-89.
19. White KP, Nielson WR, Harth M, Ostbye T, Speechley M. Does the label "fibromyalgia" alter health status, function, and health service utilization? A prospective, within-group comparison in a community cohort of adults with chronic widespread pain. Arthritis Rheum 2002;47:260-5.
20. Zih FS, Da Costa D, Fitzcharles MA. Is there benefit in referring patients with fibromyalgia to a specialist clinic? J Rheumatol 2004;31:2468-71.
21. Garcia-Campayo J, Magdalena J, Magallon R, Fernandez-Garcia E, Salas M, Andres E. A meta-analysis of the efficacy of fibromyalgia treatment according to level of care. Arthritis Res Ther 2008;10:R81.
22. 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.
23. Geisser ME, Clauw DJ, Strand V, Gendreau RM, Palmer R, Williams DA. Contributions of change in clinical status parameters to patient global impression of change (PGIC) scores among persons with fibromyalgia treated with milnacipran. Pain 2010;149:373-8.
24. Bakker C, Rutten M, van Santen-Hoeufft M, Bolwijn P, van Doorslaer E, Bennett K, et al. Patient utilities in fibromyalgia and the association with other outcome measures. J Rheumatol 1995;22:1536-43.
25. Campos RP, Vazquez Rodriguez MI. Health-related quality of life in women with fibromyalgia: clinical and psychological factors associated. Clin Rheumatol 2012;31:347-55.
26. 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.
27. Martinez MP, Sanchez AI, Miro E, Medina A, Lami MJ. The relationship between the fear-avoidance model of pain and personality traits in fibromyalgia patients. J Clin Psychol Med Settings 2011;18:380-91.
28. Reisine S, Fifield J, Walsh SJ, Feinn R. Do employment and family work affect the health status of women with fibromyalgia? J Rheumatol 2003;30:2045-53.
29. Henriksson C, Liedberg G. Factors of importance for work disability in women with fibromyalgia. J Rheumatol 2000; 27:1271-6.
30. Henriksson C, Burckhardt C. Impact of fibromyalgia on everyday life: a study of women in the USA and Sweden. Disabil Rehabil 1996;18:241-8.
31. Annemans L, Le Lay K, Taieb C. Societal and patient burden of fibromyalgia syndrome. Pharmacoeconomics 2009;27:547-59.
32. 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.
33. Annemans L, Wessely S, Spaepen E, Caekelbergh K, Caubere JP, Le Lay K, et al. Health economic consequences related to the diagnosis of fibromyalgia syndrome. Arthritis Rheum 2008; 58:895-902.
34. Sicras-Mainar A, Rejas J, Navarro R, Blanca M, Morcillo A, Larios R, et al. Treating patients with fibromyalgia in primary care settings under routine medical practice: A claim database cost and burden of illness study. Arthritis Res Ther 2009;11:R54.
35. Walen HR, Cronan PA, Bigatti SM. Factors associated with healthcare costs in women with fibromyalgia. Am J Manage Care 2001;7 Spec No:SP39-47.
36. 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.
37. Price DD, Staud R. Neurobiology of fibromyalgia syndrome. J Rheumatol Suppl. 2005 Aug;75:22-8.
38. Buskila D, Neumann L. Fibromyalgia syndrome (FM) and nonarticular tenderness in relatives of patients with FM. J Rheumatol 1997;24:941-4.
39. Smith SB, Maixner DW, Fillingim RB, Slade G, Gracely RH, Ambrose K, et al. Large candidate gene association study reveals genetic risk factors and therapeutic targets for fibromyalgia. Arthritis Rheum 2012;64:584-93.
40. Gupta A, Silman AJ, Ray D, Morriss R, Dickens C, MacFarlane GJ, et al. The role of psychosocial factors in predicting the onset of chronic widespread pain: results from a prospective population-based study. Rheumatology 2007;46:666-71.
41. Jones GT, Power C, Macfarlane GJ. Adverse events in childhood and chronic widespread pain in adult life: results from the 1958 British Birth Cohort Study. Pain 2009;143:92-6.
42. Boisset-Pioro MH, Esdaile JM, Fitzcharles MA. Sexual and physical abuse in women with fibromyalgia syndrome. Arthritis Rheum 1995;38:235-41.
43. Bieber C, Muller KG, Blumenstiel K, Hochlehnert A, Wilke S, Hartmann M, et al. A shared decision-making communication training program for physicians treating fibromyalgia patients: effects of a randomized controlled trial. J Psychosom Res 2008;64:13-20.
44. Haugli L, Strand E, Finset A. How do patients with rheumatic disease experience their relationship with their doctors? A qualitative study of experiences of stress and support in the doctor-patient relationship. Patient Educ Couns 2004;52:169-74.
45. Dobkin PL, De Civita M, Abrahamowicz M, Bernatsky S, Schulz J, Sewitch M, et al. Patient-physician discordance in fibromyalgia. J Rheumatol 2003;30:1326-34.
46. Hellstrom O, Bullington J, Karlsson G, Lindqvist P, Mattsson B. Doctors' attitudes to fibromyalgia: a phenomenological study. Scand J Soc Med 1998;26:232-7.
47. Hauser W, Thieme K, Turk DC. Guidelines on the management of fibromyalgia syndrome — a systematic review. Eur J Pain 2010;14:5-10.