Patient and Provider Factors Related to Comprehensive Arthritis Care in a Community Setting in Ontario, Canada

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ABSTRACT. ***Objective.*** To determine factors that correlate with recommendations for nonpharmacologic and pharmacologic interventions (comprehensive therapy) in community dwelling adults.

Methods. Eligible participants were ≥ 55 years of age with hip and knee arthritis symptoms and disability. Comprehensive therapy was classified as a recommendation for exercise and weight loss (if required) and any pharmacotherapy.

Results. Only one-half of participants received a recommendation for comprehensive therapy. Participants who had seen a specialist and a therapist were almost twice as likely to receive a recommendation for comprehensive therapy.

Conclusion. In our setting, many people with hip or knee arthritis were not receiving even minimum recommended treatment. Changes in educational and organizational policies are needed to address this situation. (J Rheumatol 2003;30:1846–50)

Key Indexing Terms:
OSTEOARTHRITIS TREATMENT GUIDELINES QUALITY OF CARE

Osteoarthritis (OA) is the most common form of arthritis, increasing with age and reaching a prevalence of 70% among those over age 65 years in Western societies. Its prevalence is projected to increase dramatically over the next 3 decades[1]. Current treatment guidelines recommend that care of patients with OA of the hip and/or knee should include a comprehensive spectrum of therapy that combines nonpharmacologic interventions such as patient education, exercise, weight loss (if overweight), assistive devices for ambulation, and physical therapy with pharmacologic interventions including analgesics, nonsteroidal antiinflammatory drugs (NSAID), intraarticular corticosteroids or hyaluronan injection (for knees), and topical therapy[2-4]. When these interventions fail, referral to an orthopedic surgeon may be warranted. Among the nonpharmacologic interventions, clinical trial evidence exists for patient education, exercise, and weight loss[5,6].

We investigated factors that correlate with the receipt of recommendations for comprehensive therapy in adults with hip and/or knee arthritis.

MATERIALS AND METHODS

This study was one component of a multiphase population survey of adults aged 55 years and older living in 2 regions of Ontario, Canada[7-9]. Potential participants were adults 55 years of age or older, who were living in Oxford County, a mostly rural county in southwestern Ontario. In phase 1, participants were screened for hip or knee joint symptoms and functional limitations. Of the 19,658 potentially eligible participants, 14,369 (73.1%) completed the phase 1 questionnaire. Participants were approached to participate in phase 2 if they had (1) experienced problems when standing, walking, and arising from a chair; (2) persistent pain, stiffness, or swelling in joints for at least 6 weeks in the past 3 months; and (3) a hip or knee that had been troublesome. In phase 2, the respondents completed the Western Ontario McMaster University Osteoarthritis Index (WOMAC)[10]. The WOMAC score was transformed to a scale of 0 through 100, with 100 representing extreme levels of pain and stiffness and restrictions in

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activities of daily living. Of the 1595 potentially eligible participants, 1322 completed the phase 2 questionnaire. In phase 3, a sample of respondents from phase 2 were interviewed in their homes with the primary objective of determining factors affecting willingness to undergo total joint replacement surgery. This sample was randomly drawn from all phase 2 participants, and sampling by replacement was used until the required sample size was achieved. The sample size was set at 375 and a few additional participants were recruited to ensure that the required sample size was met. Throughout all phases of this study, severe arthritis was defined by a WOMAC summary score ≥ 39[11]. Ethics approval was received from the Human Subjects Review Committee of the University of Toronto. Written, informed consent was obtained from all participants.

Treatment and provider data were collected through participant self-report during an interview in the participant's home. Participants were asked to specify all treatments that they had ever been told to try for their hip or knee arthritis from a detailed list derived from arthritis treatment guidelines. For this analysis, we defined the primary outcome as a recommendation for comprehensive therapy that was supported by clinical trial evidence, namely, (1) any recommendation for exercise *and* (2) advice to lose weight if body mass index (BMI) > 27, a common indicator of obesity[12] *and* (3) any pharmacologic interventions[5,6]. Participants were also asked to identify each type of health care provider that they had ever seen for their hip or knee arthritis in addition to their family physician. Participants were divided into 4 provider groups: (1) saw a rheumatologist and/or orthopedic surgeon (specialist); (2) saw an occupational therapist and/or physical therapist (therapist); (3) saw both a specialist and a therapist; and (4) did not see a specialist or therapist. Other professions such as chiropractic were classified into an "other provider" category. Characteristics of participants were compared using analysis of variance and the chi-squared test for association. Logistic regression was used to examine the effects of age, sex, BMI, WOMAC score, education level, and provider type on treatment recommendations. Adjusted odds ratios (OR) from the logistic regression analyses were reported with 99% confidence interval (CI), except for the primary outcome of a recommendation for comprehensive therapy that was reported with a 95% CI. Because major psychiatric illness may be a deterrent to a recommendation for comprehensive care, a secondary analysis was conducted that excluded participants who had been treated in the past year for depression or other major mental illness.

RESULTS

Of the 440 eligible respondents approached to participate in this study, 382 (86.8%) agreed to participate and 58 refused. Subjects who declined to participate were significantly older, more likely to be female, widowed or single, and living alone compared to study participants.

Characteristics of the study participants, the frequency of recommended treatments, and the types of provider seen by WOMAC severity are listed in Table 1. Independent of severity, more than 90% of participants had received a recommendation for at least one nonpharmacologic intervention and at least one form of pharmacologic therapy. The majority (77.0%) had seen at least one health care provider in addition to their family doctor for their hip or knee problems. In total, 62.8% had received a recommendation to increase exercise or participate in a formal exercise program. Among participants with a BMI > 27, 124 of 212 (58.5%) had received a recommendation for weight loss. However, only one-half (50.9%) of participants received recommendations for comprehensive therapy. Over 40% had seen other types of providers. Participants with more severe symptoms were more likely to have seen both a specialist and a therapist and other types of providers as well as to have received a recommendation for formal exercise, canes/crutches/walkers, joint injection with cortisone, or any pharmacologic treatment.

Adjusted OR and CI for recommended treatments appear in Table 2. In logistic regression, interaction terms were examined for arthritis severity and the type of provider seen, and these were not significant. Having seen both a specialist and therapist resulted in the greatest number of associations with recommended treatments. A recommendation for comprehensive therapy was significantly associated with younger age (per year) (OR 0.96, 95% CI 0.93–0.99) and having seen both a specialist and a therapist (OR 1.84, 95% CI 1.06–3.19). Having seen another type of provider showed a nonsignificant trend toward association with a recommendation for comprehensive therapy (OR 1.53, 95% CI 0.96–2.47). The results of these analyses did not change appreciably when stratified for study subjects with BMI > 27 and ≤ 27. In addition, the magnitude of the association for having seen both a specialist and a therapist increased substantially (OR > 4) when additional recommendations, such as for cane/crutches/walker and heat or ice, were added to the classification of comprehensive therapy. Exclusion from the analysis of participants who had been treated for depression or other major mental illness within the past year (n = 34) did not change the results of the primary analysis, except to strengthen the association for women who were more likely than men to have received a recommendation for comprehensive therapy (OR 1.74. 95% CI 1.01–3.01).

DISCUSSION

While almost all of this population of aging adults with hip and knee arthritis symptoms and disability received a recommendation for pharmacotherapy, only one-half had ever received a recommendation for comprehensive therapy consisting of exercise and weight loss (if required), in addition to pharmacotherapy. For this study, comprehensive therapy was defined as the receipt of interventions for which there is convincing clinical trial evidence of improved patient outcomes. While it is acknowledged that sustained weight reduction and protracted exercise regimes may not be achieved by all patients with arthritis, these recommendations continue to remain important components of treatment guidelines for arthritis. The value of weight control and exercise for aging adults, with or without arthritis, has been well documented and continues to be strongly advocated[13,14].

Our results confirm the findings of other investigators who have reported that the provision of recommended interventions to patients with hip and knee arthritis in primary care may be suboptimal[15-20]. Participants who had seen both a specialist and a therapist were almost twice as likely to receive a recommendation for comprehensive therapy as those who did not see a specialist and therapist, reflecting

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Table 1. Frequency of provider interventions ever received and types of treatment ever told to try for hip and knee problems by severity as classified by WOMAC score.

	n	All, n = 382 mean (SD)	WOMAC < 39, n = 137 mean (SD)	WOMAC ≥ 39, n = 245 mean (SD)	p
Age, yrs	382	67.6 (8.3)	68.0 (8.1)	67.4 (8.4)	0.473
Body mass index	346	28.5 (5.0)	28.5 (5.1)	28.5 (5.0)	0.994
Female (%)	382	274 (71.7)	97 (70.8)	177 (72.2)	0.764
Elementary education only (%)	376	111 (29.5)	30 (22.6)	81 (33.3)	0.084
Married or common-law (%)	377	274 (72.7)	104 (77.6)	170 (70.0)	0.096
Nonpharmacologic treatment (%)					
Increase exercise	382	202 (52.9)	64 (46.7)	138 (56.3)	0.071
Formal exercise program	382	142 (37.2)	39 (28.5)	103 (42.0)	0.008
Heat or ice	382	279 (73.0)	97 (70.8)	182 (74.3)	0.462
Canes/crutches/walkers	382	142 (37.2)	36 (26.3)	106 (43.3)	0.001
Lose weight	382	169 (44.2)	53 (38.7)	116 (47.3)	0.102
Any nonpharmacologic treatment	382	347 (90.8)	120 (87.6)	227 (92.7)	0.100
Pharmacologic treatment (%)					
Acetaminophen	382	242 (63.4)	82 (59.9)	160 (65.3)	0.289
Acetaminophen + codeine	382	144 (37.7)	46 (33.6)	98 (40.0)	0.214
NSAID	382	301 (78.8)	107 (78.1)	194 (79.2)	0.804
Joint injection with cortisone	382	134 (35.1)	37 (27.0)	97 (39.6)	0.013
Any pharmacologic treatment	382	361 (94.5)	124 (90.5)	237 (96.7)	0.010
Comprehensive therapy* (%)	346	176 (50.9)	56 (43.8)	120 (55.0)	0.042
Health Professionals (one of),	382				
Specialist only†		62 (16.2)	23 (16.8)	39 (15.9)	
Therapist only††		45 (11.8)	15 (10.9)	30 (12.2)	
Both specialist and therapist		129 (33.8)	30 (21.9)	99 (40.4)	
Neither specialist nor therapist		146 (38.2)	69 (50.4)	77 (31.4)	0.001
Saw other types of providers** (%)	382	163 (42.7)	48 (35.0)	115 (46.9)	0.024
Saw other type of health professional (%)	382	294 (77.0)	91 (66.4)	203 (82.9)	0.000

* Participant (1) received any recommendation for exercise *and* (2) were advised to lose weight if BMI > 27, *and* (3) received any pharmacologic interventions. † Rheumatologist and/or orthopedic surgeon (saw rheumatologist only, n = 53; saw orthopedic surgeon only, n = 110; saw both, n = 28). †† Physical therapist and/or occupational therapist (saw physical therapist only, n = 127; saw occupational therapist only, n = 4; saw both, n = 43). ** Includes chiropractor, homeopath, naturopath, unspecified, and other health professional/physician specialty types.

the contribution that coordinated multidisciplinary care can make. Our definition of comprehensive therapy comprised recommendations that are well supported in the primary care literature and that do not require expertise or referral from outside of primary care practices.

Potential limitations of the study include lack of information on patient adherence to recommendations for therapy, lack of information on psychological variables such as health beliefs and health attitudes, and recall bias. These factors may have influenced participant recollection of recommendations for care, particularly for recommendations that they chose not to follow or for interventions that did not require a written prescription.

We conclude that in our setting, many people with hip and knee arthritis symptoms and disability did not report receiving minimum recommended treatment. Changes in educational and organizational policies are needed to address this situation. With the rising prevalence of arthritis in the aging population, interventions must be targeted to primary care and should include a requirement for appropriate musculoskeletal training during undergraduate and postgraduate medical education, as well as effective and multifaceted interventions directed toward behavior change among practising primary care physicians. Our study highlights the importance of multidisciplinary involvement in arthritis care. Health policies affecting health professional training and remuneration need to be aligned with the goal of ensuring an adequate supply and distribution of rheumatologists and rehabilitation therapists.

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Table 2. Correlates of treatment recommendations by age, sex, body mass index (BMI), severity score (WOMAC), completed high school, marital status, and provider type* (n = 337). Statistically significant values are given in bold type.

	Age (per year)	Female (vs male)	BMI (kg/m^2)	WOMAC Score (per unit increase)	High school (vs < HS)	Married/Common Law (vs single)	Specialist Only (vs usual care)	Therapist Only (vs usual care)	Both Specialist and Therapist (vs usual care)
Treatment recommendation (ever been told to try)									
Increase exercise									
Adjusted OR	0.97	1.14	1.03	1.01	0.92	0.33	1.30	1.12	**2.13**
(99% CI)	(0.93–1.01)	(0.58–2.26)	(0.97–1.10)	(0.99–1.03)	(0.46–1.85)	(0.09–1.21)	(0.54–3.12)	(0.41–3.03)	(1.02–4.45)
Formal exercise program									
Adjusted OR	0.98	**2.75**	1.01	1.02	1.97	0.56	1.35	2.61	**2.39**
(99% CI)	(0.95–1.00)	(1.25–6.05)	(0.95–1.07)	(0.99–1.03)	(0.92–4.25)	(0.14–2.29)	(0.50–3.64)	(0.91–7.49)	(1.10–5.21)
Heat or ice									
Adjusted OR	0.98	1.33	1.04	0.99	1.25	0.53	2.38	2.23	**5.87**
(99% CI)	(0.93–1.02)	(0.61–2.87)	(0.97–1.12)	(0.97–1.01)	(0.57–2.74)	(0.15–1.93)	(0.89–6.32)	(0.70–7.08)	(2.25–15.32)
Canes/crutches/walker									
Adjusted OR	**1.14**	0.98	1.07	**1.03**	1.06	1.45	**4.60**	1.54	**7.00**
(99% CI)	(1.08–1.20)	(0.43–2.27)	(1.00–1.15)	(1.01–1.05)	(0.47–2.43)	(0.35–5.93)	(1.55–13.66)	(0.44–5.41)	(2.71–18.09)
Lose weight									
Adjusted OR	1.00	0.67	**1.33**	1.01	1.00	0.76	1.09	1.93	1.59
(99% CI)	(0.95–1.04)	(0.31–1.44)	(1.21–1.46)	(0.99–1.03)	(0.46–2.17)	(0.20–2.95)	(0.39–3.03)	(0.64–5.85)	(0.68–3.69)
NSAID									
Adjusted OR	1.00	0.88	1.01	1.00	1.11	0.46	1.22	1.30	1.16
(99% CI)	(0.95–1.05)	(0.38–2.05)	(0.94–1.08)	(0.98–1.02)	(0.50–2.47)	(0.12–1.70)	(0.42–3.51)	(0.37–4.56)	(0.48–2.82)
Acetaminophen									
Adjusted OR	1.03	1.80	1.00	1.01	1.02	0.88	0.89	1.57	0.83
(99% CI)	(0.99–1.07)	(0.90–3.57)	(0.94–1.06)	(0.99–1.03)	(0.50–2.08)	(0.24–3.19)	(0.36–2.19)	(0.51–4.83)	(0.40–1.74)
Acetaminophen + codeine									
Adjusted OR	1.01	1.08	1.03	1.01	0.79	1.17	2.01	1.17	**2.63**
(99% CI)	(0.97–1.05)	(0.53–2.18)	(0.97–1.10)	(0.99–1.03)	(0.39–1.61)	(0.34–4.07)	(0.80–5.03)	(0.40–3.41)	(1.24–5.60)
Joint injection with cortisone									
Adjusted OR	1.00	0.91	1.02	1.01	1.08	1.12	**3.79**	2.20	**5.33**
(99% CI)	(0.96–1.04)	(0.44–1.89)	(0.96–1.09)	(0.99–1.02)	(0.52–2.27)	(0.30–4.16)	(1.46–9.84)	(0.74–6.52)	(2.38–11.94)
Comprehensive therapy†									
Adjusted OR	**0.96**	1.64	0.97	1.01	1.09	0.60	1.28	1.65	**1.84**
(95% CI)	(0.93–0.99)	(0.98–2.75)	(0.93–1.02)	(1.00–1.02)	(0.64–1.84)	(0.23–1.54)	(0.65–2.51)	(0.77–3.53)	(1.06–3.19)

* Compared with seeing neither a specialist nor a therapist (usual care). † Participant (1) received any recommendation for exercise and (2) advised to lose weight if BMI > 27 and (3) any pharmacologic interventions.

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