Patterns of arthritis medication use in a community sample

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Abstract

BACKGROUND—Although arthritis is disabling, highly prevalent, and often treated without health professional input, little is known about the treatments selected by affected individuals. Such information is important because of the toxicity associated with some arthritis treatments.

OBJECTIVE—To describe the pattern of drug treatment use in a sample of persons with arthritis.

DESIGN, SETTING and PATIENTS—We distributed an 11-item survey to veterans attending veterans' organization post meetings in southeastern Wisconsin during November and December 2009. Of 32 posts, 26 (81%) returned surveys from 446 persons; survey count and attendance figures suggest the vast majority of attendees completed surveys at participating posts. Most respondents were older (75% aged 60 years or older) men (90%).

MEASUREMENTS—Respondents with arthritis reported whether they had used each of seven drug therapies in the past year.

RESULTS—Almost all members of participating posts responded to the survey, increasing the likelihood this was a representative sample. Most (290/446, 65%) respondents reported having arthritis, which impaired function in 78.6% of them. Most of those with arthritis (252/290, 86.9%) had used at least one drug treatment for arthritis in the last year. Acetaminophen use (41.6%) and use of an over the counter NSAID (42.1%) were common. NSAID use did not decrease with older age, or increase with greater functional impairment.

CONCLUSIONS—Self-medication for arthritis is very common and often does not follow clinical guidelines. Efforts to improve the quality of osteoarthritis care that focus solely on healthcare providers are unlikely to ensure optimal osteoarthritis care.

INTRODUCTION

Osteoarthritis is a common, chronic condition that affects more than half of Americans over the age of 65 and limits the activities of more than a third of those affected.[1] In a 2003 analysis of National Health Interview Survey data, the overall prevalence of arthritis in U.S. adults was estimated at 21.6% of the population, or 46.4 million people. Nearly 8% of the

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population reported arthritis-attributable activity limitation; this percentage is estimated to rise to 9.3% by 2030.[1, 2] While most estimates of arthritis prevalence are based on "self-reported doctor-diagnosed" arthritis (which does not differentiate among types of arthritis), the vast majority of persons with arthritis have osteoarthritis (OA).[1]

As with many chronic conditions, individuals with OA can improve outcomes with effective self-management.[3] Self-management includes making appropriate choices among therapeutic options. Importantly, many of these choices do not require the involvement of health professionals. Weight loss and exercise should be key components of arthritis self-management, given the strong evidence of benefits with respect to pain, function, and quality of life.[4, 5] In addition, appropriately chosen drug therapies are also important and widely used adjuncts.[6, 7] Acetaminophen,[8] oral[6, 7] and topical[9] non-steroidal anti-inflammatory drugs (NSAIDs), and topical capsaicin[10, 11] all have substantial evidence that they provide pain relief.[6] In contrast, there is little evidence to support or discourage the use of popular over the counter (OTC) salicylate creams (e.g., Bengay ®) or counterirritants containing menthol or eucalyptus oil (e.g., Biofreeze).[6]

Many patients have limited knowledge about treatments for OA,[12, 13] and most of the information sources currently available are unregulated or biased.[14] Even unbiased sources quickly become out of date. For example, the Agency for Healthcare Research and Quality's (AHRQ) evidence-based guide to treatment for knee osteoarthritis[7] is silent regarding the use of topical NSAIDs and supports the use of glucosamine-chondroitin, a popular supplement now thought to be no better than placebo for mild OA pain.[15] Thus, selecting a therapeutic option for OA amid competing and conflicting claims can be challenging.[14] This may be particularly problematic for older individuals and those with less education and income,[16, 17] groups which are at higher risk of OA and inadequate health literacy.[18–20]

Efforts to encourage optimal self-management need to take into account how patients are actually behaving. Surprisingly, there is little published evidence about patterns of arthritis self-treatment. The bulk of the available evidence focuses on rheumatoid arthritis (RA), a much less prevalent condition.[21] Other work predates current interest in alternative therapies such as glucosamine-chondroitin.[12, 22, 23] In order to better understand how closely the current practices of people with arthritis follow published guidelines, we surveyed a community-based sample of veterans in southeastern Wisconsin regarding their use of medications for arthritis.

METHODS

Survey Development

We developed a 5-item survey that contained questions about demographics, diagnosis of arthritis, functional limitations due to arthritis, and treatments used for arthritis (see Appendix). The diagnosis and functional limitation items (Questions 3 and 4) were adapted from the Behavioral Risk Factor Surveillance Survey.[24] The question about OA treatments (Question 5) was based on two consumer guides developed by the Agency for Healthcare Research and Quality (AHRQ).[6, 7] Clinician members of the study team confirmed that the treatments were commonly considered in practice. We revised preliminary versions of the

surveys to ensure that the descriptions of the treatments were clear, adding examples and clarifying terms. In pilot testing, the survey took 7 or fewer minutes to complete.

Survey Administration

Representatives of 32 veterans' organization posts (e.g., American Legion) participating in a hypertension self-management program distributed the surveys and an explanatory letter at a regularly scheduled meeting of their post. They collected the surveys during the same meeting. We received packets of completed surveys from 26/32 posts (81%); a total of 446 responses (mean = 17.8 responses per post; range = 7–45). To avoid coercion, we did not request representatives to count completers and potential respondents, so we cannot provide a precise response rate. However, during previous hypertension-related visits to these posts, we recorded the number of veterans who were in attendance when we presented at one meeting at each post. There were 562 veterans (mean = 22.5 attendees per post; range 5–65) in attendance at these posts when we gave our hypertension presentations. Therefore, if attendance was similar at the meeting where the survey was distributed, our 446 responses would represent 79% of those in attendance.

We considered respondents to have arthritis if they reported doctor-diagnosed arthritis or functional impairment from arthritis. We present descriptive statistics and compare use of various treatments across groups using simple and stratified chi-squared and Fisher's exact tests. We used PC-SAS v9.1 (SAS Institute, Cary, NC) for analysis. The Milwaukee VA Medical Center Institutional Review Board approved the study, waiving documentation of informed consent.

RESULTS

Most respondents were male (402/446, 90.3%). Of the 446, 290 (65%) reported having arthritis. Those with arthritis (21.1% less than 60 years old, 19.7% over 80 years old) were somewhat older than those without arthritis (33.6% less than 60 years old, 12.3% over 80 years old; p=0.002 for trend). Among these, 243 (83.8%) reported doctor-diagnosed arthritis, and 228 (78.6%) reported functional limitation from arthritis (182 reported "a little" and 46 reported "a lot").

Most individuals reporting arthritis (252/290, 86.9%) had used at least one drug treatment for arthritis in the last year. Each therapy had been used by at least 18% of respondents, except for capsaicin, which was used by only 3.8%. Acetaminophen and OTC NSAID therapies were the most commonly used (41.6% and 42.1%, respectively). Age was not significantly associated with any specific therapy (all p values 0.12). As shown in Table 2, respondents who reported "a lot" of limitation were significantly more likely to report use of glucosamine-chondroitin, topical salicylates, and prescription pain medication, but not more OTC NSAID. There were trends for more acetaminophen (p = 0.080) and capsaicin (p = 0.067) use with more limitation.

Compared to persons with functional limitation but not doctor-diagnosed arthritis, individuals with doctor-diagnosed arthritis were more likely to use several prescription-only treatments. For example, they were more likely to have received a joint injection (20.6%)

than patients who had functional limitation from arthritis but no physician diagnosis (6.4%, p = 0.022). Persons who had doctor-diagnosed arthritis were also more likely to have used a prescription pain medication (26.7%) than those with no physician diagnosis (8.5%, p = 0.008). Conversely, capsaicin, an OTC treatment, was less frequently used by individuals with doctor-diagnosed arthritis (2.5%) than by those without a physician diagnosis (10.6%, p = 0.020). (All p values by Fisher's exact test).

We found no statistically significant relationship between membership in specific posts and use of specific treatments except that over a third of persons who reported capsaicin use were members of a single post (4/11 members). In no other post did more than 1 respondent report capsaicin use (p = 0.013 by Monte Carlo approximation of Fisher's exact test).

DISCUSSION

In this community-based sample of primarily older men with arthritis, we found that their patterns of drug treatment are not consistent with current guidelines. First, although guidelines recommend that patients with OA with minimal functional impairment use acetaminophen rather than NSAID as their first-line pain medication, we found that such persons were as likely to use an OTC NSAID as those with more severe impairment, often in preference to acetaminophen. This pattern was seen in all age groups, despite the increasing risk of NSAID toxicity among older individuals. Second, our respondents reported widespread use of glucosamine-chondroitin and topical salicylates despite guidelines suggesting they are ineffective. Third, the use of capsaicin is endorsed by a number of guidelines, yet in our sample it was rarely used. These findings suggest that current self-management choices may expose patients with OA to excess risk in the form of side effects without capitalizing on therapies with proven benefits.

Our findings are consistent with prior descriptions of medication use by persons with arthritis.[5, 11, 25, 26] The proportion of persons in our study reporting acetaminophen and NSAID use was also similar to that reported by Vallerand et al. in their study of general pain medication use.[22] Our paper focuses on arthritis alone, and thus adds to their more general findings about self-medication for pain. Although national surveys on complementary and alternative medicine indicate glucosamine-chondroitin is widely used, we were unable to find reports of patterns of use in older osteoarthritis patients.

Why do patients choose self-management approaches so at odds with the evidence and published guidelines, particularly those that have explicitly targeted patients?[6, 7] One likely explanation is that patients are unaware of the guidelines, or have trouble finding them. Education may be helpful; when given information on the toxicity and effectiveness of various OA treatments, over 40% of knee OA patients preferred topical capsaicin.[11] But the influence of educational messages on behavior is limited by several factors. First, messages are likely to continue to be discordant, since many professionals may disagree with some guideline recommendations. For example, although most clinical reviews and guidelines suggest glucosamine-chondroitin is not effective, some authors disagree or have disagreed in the past. Second, some recommendations conflict with patient experience. In the Common Sense Model of Illness,[27] persons evaluate the effect of self-management based on personal

experiences that are readily linked to their behavior. Although NSAIDs may increase the risk of serious consequences, most persons experience only mild dyspepsia and prefer the pain relief of NSAIDs over that provided by acetaminophen.[25] Surveys suggest patients are generally willing to risk mild to moderate side effects (e.g., the stomach upset associated with NSAID use), giving greater weight to pain alleviation and a reduction in disability.[28] Thus, a decision to use NSAIDs over acetaminophen is consistent with this model. Similarly, the short term effect of capsaicin is painful burning, while the pain relief is less directly linked to the application of the cream. Third, peer influence may be an important driver of medication choice. For example, respondents at one particular post reported capsaicin use above and beyond what we saw in every other post. It is possible that one or more members of this post had success with capsaicin, and championed its use among their peers. Similarly, testimonials to the benefits of glucosamine are commonly presented in mass media and online. Almost all clinicians can cite patients who report significant pain relief with use of this agent. In our experience, it is common practice for a clinician to acknowledge this fact, note the limited toxicity of glucosamine-chondroitin, and leave the choice to the patient.

We acknowledge several limitations to our data. First, we surveyed members of veterans' organizations who attend their monthly meetings. These are primarily older white men who are functional enough to come to a social gathering. That said, our response rate was very high within this group; indeed, the fact that we obtained participation by nearly 80% of members of participating posts increases the likelihood that these data represent the entire population of post members, rather than a biased group of respondents. Moreover, the patterns of arthritis prevalence and functional impact are very similar to those in population-based surveys.[1] Second, we relied on self-report of medication use. However, there is evidence that when people report taking a medicine, they are accurate, even though they may omit some medications.[29] We suspect that accuracy is further enhanced by using broad categories with common examples, rather than requesting specific drug names. Third, because we asked about "any use" of these medications in the last year, some drugs may have been infrequently used, or only taken in small doses; in the case of NSAIDs, this might have decreased the risk of serious side effects. Finally, we limited the number of questions so as to enhance the response rate; thus, we do not have data that address why these veterans report self-management that is so guideline discordant.

Despite these limitations, we believe our work emphasizes the need for clinicians, researchers, and policy makers to address OA self-management. Rather than simply recommending a treatment, clinicians should first evaluate patients' prior experience. In addition to educating patients regarding risks, benefits, and expected results of various alternatives, they should advise patients about how to find and recognize reliable information resources that they can use to guide their self-management. Researchers need to identify effective and efficient ways to encourage optimal self-management decisions, even those decisions made independent of professional input. Finally, policy makers need to ensure that patient oriented references are regularly updated. These references should present risks and benefits of various self-management options in ways that are actionable, attractive and readily understood by lay persons acting with or without professional guidance.

Acknowledgments

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Table 1

Use of therapy by age group among individuals with arthritis (n=290)

Treatment	Percent using each treatment					P value [**]
	Age Group (years old)					
	60	61–70	71–80	81	Total	
Bengay® [*]	27.9	25.0	25.3	36.8	28.0	0.30
Capsaicin	1.6	2.1	6.7	5.3	3.8	0.13
Gluc-chon [*]	14.8	29.2	33.3	24.6	26.3	0.18
Acetaminophen	44.3	34.4	40.0	50.9	41.2	0.34
OTC NSAID [*]	37.7	50.0	37.3	40.4	42.2	0.73
Rx Pain Drug [*]	31.2	22.9	24.0	17.5	23.9	0.12
Joint Injection	18.0	10.4	26.7	21.1	18.3	0.16

[*]
Bengay®=pain relief skin cream; Gluc-chon=glucosamine with or without chondroitin; OTC NSAID=over the counter non-steroidal anti-inflammatory drugs; Rx=prescription

[**]
Mantel-Haenzel test for trend with increasing age

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Table 2

Proportion of individuals with arthritis reporting use of various therapies by degree of functional impairment

Treatment	Overall (n=290) n (%)	Activity limited by arthritis/joint pain?			P value**
		No (n=63) n (%)	A little (n=181) n (%)	A lot (n=46) n (%)	
Bengay® *	81 (27.9)	14 (22.2)	44 (24.3)	23 (50.0)	0.0032
Capsaicin	11 (3.8)	0 (0.0)	8 (4.4)	3 (6.5)	0.067
Gluc-chon *	76 (26.2)	9 (14.3)	52 (28.7)	15 (32.6)	0.022
Acetaminophen	119 (41.6)	21 (33.3)	75 (41.4)	23 (50.0)	0.080
OTC NSAID *	122 (42.1)	20 (31.8)	84 (46.4)	18 (39.1)	0.32
Rx pain drug *	69 (23.8)	9 (14.3)	33 (18.2)	27 (58.7)	<0.0001
Joint injection	53 (18.3)	4 (6.4)	36 (19.9)	13 (28.3)	0.0026
Any of the above	252 (86.9)	45 (71.4)	164 (90.6)	43 (93.5)	0.0003

*
Bengay®=pain relief skin cream; Gluc-chon=glucosamine with or without chondroitin; OTC NSAID=over the counter non-steroidal anti-inflammatory drugs; Rx=prescription

**
Mantel-Haenzel test for trend with increasing limitation