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Alcohol Use and Activity Limitations in Gout Patients

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BACKGROUND: Few studies have evaluated whether patients with a diagnosis of gout adhere to alcohol use recommendations and the relationship between adherence and activity limitations.

PURPOSE: The purpose of this study was to determine adherence to American College of Rheumatology (ACR) alcohol use recommendations and evaluate the relationship between alcohol use and activity limitations in persons with gout.

METHOD: A secondary analysis was performed with a sample of 298 persons with gout from the 2008 National Health Interview Survey.

RESULTS: In all, 22.8% of persons with gout were nonadherent to alcohol use recommendations. Males, those aged 41–60 years, and those not receiving healthcare for joint symptoms were most likely to be nonadherent. In all, 39.9% reported that joint symptoms interfered with activity in the preceding 30 days. Those who were adherent were more likely to report limitations ($\chi^2 = 6.788$, $p = .03$).

CONCLUSIONS: To promote optimal patient outcomes, more attention needs to be devoted to individualized patient education and self-management interventions that follow ACR recommendations.

Introduction

There is currently renewed interest in managing gout. The prevalence of gout, a chronic inflammatory arthritic disorder related to hyperuricemia, has more than doubled in the past 20 years. Currently, at least 8.3 million Americans (3.9%) are living with gout (Zhu, Pandya, & Choi, 2011). This increase is attributed to an aging population and rising rates of comorbidities associated with hyperuricemia, including hypertension, metabolic syndrome, and obesity, and is expected to continue to grow dramatically (Krishnan, 2013).

Comprehensive management includes both nonpharmacological and pharmacological interventions. Although most patients require urate-lowering medication to achieve target serum urate levels, integrating lifestyle modifications promotes overall health and optimal management (Chaichian, Chohan, & Becker, 2014). Few patients, though, receive education regarding appropriate lifestyle modifications, contributing to nonadherence to recommendations and leading to disease progression and decreased quality of life by limiting participation in desired activities (Harrold et al., 2012; Reach, 2011; Rees, Jenkins, & Doherty, 2013; Spencer, Carr, & Doherty, 2012). Although excess alcohol consumption is a known risk factor for gout, few studies have evaluated whether patients with a diagnosis of gout are adhering to alcohol use recommendations and the relationship between adherence and activity limitations.

Background

Alcohol can increase uric acid levels by increasing uric acid production and decreasing uric acid excretion. Specifically, alcohol increases uric acid production by increasing adenosine triphosphate degradation to adenosine monophosphate, a precursor to uric acid. Lactate generated from alcohol metabolism increases proximal tubular urate reabsorption and interferes with urinary urate secretion (Choi, 2012).

The incidence of gout increases as alcohol consumption increases and varies by gender and the type of alcohol (Wang, Jiang, Wu, & Zhang, 2013). In the Framingham Heart Study, when compared with those who drank less than 0–1 ounce of alcohol weekly, females who drank 7 ounces or more had more than three times the incidence of gout whereas males drinking this amount had more than twice the risk (Roddy & Choi, 2014). Beer has the strongest association with gout, likely due to its high purine content, followed by spirits (Chaichian et al., 2014). Moderate wine intake does not appear to increase the risk of gout.

Two recent epidemiological studies examining alcohol use as a trigger for gout attacks have reported that the risk of recurrent gout attacks increases as the amount of alcohol consumed increases (Neogi et al., 2014; Zhang et al., 2006). Consuming more than one to two drinks, regardless of the type of alcohol, in a 24-hour period was associated with a 36% higher risk of recurrent attack compared with no alcohol intake in that period (Neogi et al., 2014).

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To reduce the clinical burden of gout, the 2012 American College of Rheumatology (ACR) evidence-based guidelines for effective gout management emphasize a combination of urate-lowering therapy and lifestyle modifications. The ACR guidelines recommend all patients with gout reduce alcohol consumption, limiting intake to no more than one to two drinks per day for males and one drink per day for females. Patients should refrain from all alcohol use during periods of active gouty arthritis, when they are experiencing frequent gout attacks, or when they have poorly controlled, advanced disease (Khanna et al., 2012).

For patients to self-manage gout effectively, they need to be aware of the potential impact of alcohol use, diet, and medications on their condition and adhere to treatment recommendations. Gout is among the chronic diseases with the lowest rates of adhering to treatment (Reach, 2011). The few studies investigating adherence to alcohol use recommendations have reported that 39%–59% of patients did not follow gender-specific recommendations (Harrold et al., 2012; Shulten, Thomas, Miller, Smith, & Ahern, 2009). Only 43% of patients knew that beer consumption could trigger a gout flare (Harrold et al., 2012). In general, nonadherence with gout medication therapy is more likely in younger patients, males, and African Americans (De Vera, Marcotte, Rai, Galo, & Bhole, 2014; Harrold et al., 2009).

Nonadherence is an important factor contributing to suboptimal outcomes. Poorly controlled gout has a pervasive effect on many aspects of the patient's life, leading to reduced health-related quality of life by limiting participation in daily activities (Dalbeth & Lindsay, 2012). Those experiencing acute attacks describe complete dependency on others during the attack, being bedridden and unable to walk (Lindsay, Gow, Vanderpyl, Logo, & Dalbeth, 2011). As gout progresses, patients experience more painful attacks and fewer pain-free intervals, leading to a lower quality of life (Chandratre et al., 2013; Lee et al., 2009). Patients describe limited activity and increased work disability. The personal economic burden is seen in loss of productivity, recurrent work absences, and requiring work accommodations (Rai et al., 2015).

Elucidating the relationship between alcohol use and symptoms has the potential to influence gout management. First, given the rising prevalence of gout and the impact of gout on quality of life, effective strategies are needed to better manage chronic gout. Second, many patients with gout have comorbid conditions, including Type 2 diabetes mellitus, dyslipidemia, hypertension, and coronary heart disease, whose risks may be reduced with light to moderate alcohol intake. Better understanding the relationship between alcohol use and symptoms will allow providers and patients to make informed decisions about alcohol consumption.

To address these knowledge gaps, the first purpose of this study was to determine the extent that patients with gout adhere to ACR alcohol use recommendations. The second purpose was to investigate the relationship between alcohol consumption and gout-related activity limitations.

Methods

Data

Data were obtained from the public use files of the 2008 National Health Interview Survey (NHIS). The NHIS, conducted by the National Center for Health Statistics and the Centers for Disease Control and Prevention, is the principal source of health information in the United States. The NHIS uses a complex, stratified, multistage sampling design to provide nationally representative data and oversamples Hispanics and African Americans. Each week, U.S. Bureau of the Census personnel privately interview randomly chosen participants at their place of residence. Federal rules governing public use files ensure confidentiality.

Sample

A question in the 2008 NHIS asked, "Have you ever been told you have gout?" Participants could answer *yes*, *no*, *do not know*, or *refuse to answer*. All 298 of those who answered "yes" served as the sample.

Study Variables

Demographic variables examined included gender, age, ethnicity, and current employment status. To evaluate healthcare utilization, participants described whether they were receiving care from a doctor or healthcare professional for their joint symptoms.

To evaluate alcohol use behaviors, respondents who stated they had consumed at least 12 alcoholic drinks in their lifetime were asked a series of questions related to drinking. The first question asked the number of days they drank per week, per month, or per year. The next question, "How often the respondent had five or more drinks in 1 day during the past year," was asked of those who drank at least once in the past year.

On the basis of responses, level of alcohol consumption was defined as follows: light, three drinks or fewer per week; moderate, more than three drinks and up to 14 drinks per week for males and more than three drinks and up to seven drinks per week for females; and heavy, more than 14 drinks per week for males and more than seven drinks per week for females (*National Health Interview Survey (NHIS): Public-Use Data Release* by Centers for Disease Control and Prevention, 2008). Following the ACR guidelines that patients with gout limit intake to no more than one to two drinks per day for males and one drink per day for females, those respondents described as heavy drinkers and those who reported binge drinking, having more than five drinks on an occasion, were identified as not following alcohol use recommendations.

The Outcome Measures in Rheumatology (OMERACT) Gout Special Interest Group identified pain and activity limitations as part of the core domains for gout studies and endorsed the Short Form (36) Health Survey (SF-36) physical function as a valid and reliable measure of these domains (Dalbeth et al., 2014). To evaluate these limitations, all NHISs that mirrored those on the SF-36 were selected (see Table 1). Cronbach's α for the 11 items chosen here was .806. This is comparable with the published reliability statistics for the full scale, as most have

Table 1. Measurement of Activity Limitation

SF-36 Topic	NHIS Topic
General health compared with 1 year ago	Health compared with 12 months ago
Climb one flight of stairs	Walk up 10 stairs
Lift heavy objects	Push or pull large objects
Walking several blocks	Walk ¼ mile
Lift or carry groceries	Lift or carry something as heavy as 10 pounds
Bending, kneeling, stooping	Difficulty stooping, bending, or kneeling
Problems with activities as a result of physical health	Joint symptoms limit activities in any way
Physical health interfered with social activities in last 4 weeks	Difficulty participating in social activities
Degree of physical pain in last 4 weeks	Joint pain, aching, or stiffness in last 30 days
Feel downhearted and blue or down in the dumps in last 4 weeks	Sad, nothing cheers you up in last 30 days

Note. NHIS = National Health Interview Survey; SF-36 = Short Form Health Survey.

exceeded .80, and exceeds the minimum standard of .70 recommended for measures used with group comparisons (Ware, n.d.).

Analytical Approach

A cross-sectional retrospective design was used. Tests were conducted with SPSS 19.0. Categorical data were analyzed using cross-tabulations and chi-square tests, and continuous data were analyzed using means and *t* tests in the univariate and bivariate analyses. The α level was set at .05.

Results

Sample Characteristics

Table 2 presents demographic characteristics of the 298 persons who self-reported a personal history of gout. They were predominately male (65.4%), with an average age of 60 years. The majority were white (73.5%) or African American (16.8%). These proportions are equivocal to prevalence statistics for persons with gout in the United States (Zhu et al., 2011). Only 147 (49%) reported receiving care specifically for their joint symptoms. Although gender and ethnicity had no influence on whether or not a person was receiving care specifically for joint symptoms, older patients were more likely to have sought care ($r = .131$, $p = .02$).

Alcohol Use

The initial examination evaluated the extent to which persons with gout consume alcohol. Current prevalence rates for alcohol use are shown in Table 3. Approximately 40% ($n = 119$) of the persons were not consuming any alcoholic beverages, either being lifetime abstainers or not currently using alcohol. Alcohol use varied among the remaining 179 persons. Twenty-six persons used alcohol at a level considered heavy. Gender played a role in heavy alcohol use behavior. Of the 26 heavy drinkers, most (84.6%) were male ($\chi^2 = 4.633$, $p = .03$).

About 20% ($n = 62$) reported at least one occasion of binge drinking during the previous year. Again, males accounted for 59 of the 65 binge drinkers ($\chi^2 = 23.589$, $p < .001$). All of the females ($n = 6$) and 49 males who binge drink were younger than 60 years. Most of the persons who reported heavy drinking also participated in binge drinking, resulting in 22.8% or 68 total persons (60 males, 8 females) who were nonadherent to alcohol use recommendations.

There were significant relationships between adherence and gender, age, and health care utilization (see Table 4). Men, aged 41–60 years, and not receiving care for joint symptoms were most likely to be nonadherent

Table 2. Demographic Characteristics

Characteristic	*n* (%)
Gender	
Male	195 (65.4)
Female	103 (34.6)
Age	
<40 years	30 (10.1)
41–60 years	121 (40.6)
61–80 years	117 (39.3)
≥81 years	30 (10.1)
Ethnicity	
White	219 (73.5)
African American	50 (16.8)
American Indian	3 (1.0)
Asian	20 (6.7)
Multiple race	4 (1.3)
Other	2 (0.7)
Employment status	
Employed	124 (41.6)
Looking for work	10 (3.4)
Not working, not looking for work	164 (55.0)
Receiving healthcare for joint symptoms	
Yes	147 (49.3)
No	151 (50.7)

Table 3. Alcohol Use Behaviors

Alcohol Use	Gender		
	Male, *n* (%) of Total	Female, *n* (%) of Total	*n* (%) of Total
Regular use			
Abstainer	17 (5.7)	35 (11.7)	52 (17.4)
Former	44 (14.8)	23 (7.7)	67 (22.5)
Light	63 (21.1)	36 (12.1)	99 (33.2)
Moderate	46 (15.4)	4 (1.3)	50 (16.8)
Heavy	22 (7.4)	4 (1.3)	26 (8.7)
Unknown	3 (1.0)	1 (0.3)	4 (1.3)
Binge drinking			
Yes	59 (19.8)	6 (2.0)	65 (21.8)
No	136 (45.6)	97 (32.6)	233 (78.2)

($\chi^2 = 10.874$, $p = .01$). Males comprised 65.4% of the sample, yet 88.2% of those who were nonadherent were male. Although there were almost equal numbers of persons aged 41–60 years ($n = 121$) and 61–80 years ($n = 117$), in terms of adherence, 43 of 121 (35.5%) of the younger group were not adherent whereas only 10 of 117 (8.5%) of those 61–80 years were not adherent. Those who were receiving care for their joint symptoms were more likely to be adherent to alcohol use recommendations ($\chi^2 = 5.564$, $p = .03$). Only 25 (17%) of those receiving care regularly were nonadherent. All of those persons participated in binge drinking.

Activity Limitations

Table 5 shows reported activity levels, with stratification dependent on adherence to alcohol use recommendations. Approximately two of three ($n = 192$; 66.4%) persons reported having joint pain in the previous 30 days. The most common joints affected included a knee (54.4%), ankle (33.6%), toe (25.8%), and shoulder (29.2%). There was no relationship between adherence to alcohol use recommendations and joint pain in the past 30 days except in those younger than 40 years. Those in these group who were not adherent were more likely to report pain ($\chi^2 = 5.792$, $p = .02$).

Table 4. Adherence to Alcohol Use Recommendations

Demographic Factor	Adherence to Alcohol Recommendations			
	n (%)	Yes, *n* (%) of Factor	No, *n* (%) of Factor	
Gender				
Male	195 (65.4)	135 (69.2)	60 (30.8)	$\chi^2 = 32.472$***
Female	103 (34.6)	95 (92.2)	8 (7.8)	
Age				
<40 years	30 (10.1)	18 (60)	12 (40)	$\chi^2 = 32.472$***
41–60 years	121 (40.6)	78 (64.5)	43 (35.5)	
61–80 years	117 (39.3)	107 (91.5)	10 (8.5)	
≥81 years	30 (10.1)	27 (90)	3 (10)	
Ethnicity				
White	219 (73.5)	164 (74.9)	55 (25.1)	$\chi^2 = 10.273$
African American	50 (16.8)	43 (86)	7 (14)	
American Indian	3 (1.0)	1 (33.3)	2 (66.7)	
Asian	20 (6.7)	18 (90)	2 (10)	
Multiple race	4 (1.3)	2 (50)	2 (50)	
Other	2 (0.7)	2 (100)	0 (0.0)	
Healthcare utilization				
Yes	147 (49.3)	122 (83)	25 (17)	$\chi^2 = 5.564$*
No	151 (50.7)	108 (71.5)	43 (28.5)	

*$p < .05$. ***$p < .001$.

Table 5. Activity Limitations

Outcome Measures	*n* (%) of Measure	Nonadherent, *n* (%) of Measure	Adherent, *n* (%) of Measure	
Joint pain in last 30 days				
Yes	192 (64.4)	45 (66.2)	147 (63.9)	$\chi^2 = 0.117$
No	106 (35.6)	23 (33.8)	83 (36.1)	
Joint symptoms limit activity				
Yes	119 (39.9)	18 (26.5)	101 (43.9)	$\chi^2 = 6.788$*
No	179 (60.1)	50 (73.5)	130 (56.1)	
Health compared with 12 months ago				
Better	55 (18.5)	12 (17.6)	43 (18.7)	$\chi^2 = 0.644$
Worse	54 (18.1)	11 (16.2)	43 (18.7)	
Same	189 (63.4)	45 (66.2)	144 (62.6)	
Walk up 10 stairs				
Not at all difficult	203 (68.1)	56 (82.4)	147 (63.9)	$\chi^2 = 13.687$*
A little difficult	18 (6.0)	2 (2.9)	16 (7.0)	
Somewhat difficult	24 (8.1)	4 (5.9)	20 (8.7)	
Very difficult	25 (8.4)	5 (7.4)	20 (8.7)	
Cannot do at all	26 (8.7)	1 (1.5)	25 (10.9)	
Push large objects				
Not at all difficult	216 (72.5)	58 (85.3)	158 (68.8)	$\chi^2 = 19.083$**
A little difficult	19 (6.4)	5 (7.4)	14 (6.1)	
Somewhat difficult	19 (6.4)	3 (4.4)	16 (7.0)	
Very difficult	16 (5.4)	1 (1.5)	15 (6.5)	
Cannot do at all	28 (9.4)	1 (1.5)	27 (11.7)	
Lift or carry 10 pounds				
Not at all difficult	238 (76.9)	60 (88.1)	176 (76.5)	$\chi^2 = 9.535$
A little difficult	12 (4.0)	1 (1.5)	11 (4.8)	
Somewhat difficult	23 (7.7)	5 (7.4)	18 (7.8)	
Very difficult	10 (3.4)	1 (1.5)	9 (3.9)	
Cannot do at all	15 (5.0)	1 (1.5)	14 (6.1)	
Ability to stoop, bend, or kneel				
Not at all difficult	148 (49.5)	41 (60.3)	107 (46.5)	$\chi^2 = 8.534$
A little difficult	43 (14.4)	9 (13.2)	34 (14.8)	
Somewhat difficult	32 (10.7)	7 (10.3)	25 (10.9)	
Very difficult	42 (14.1)	7 (10.3)	35 (15.2)	
Cannot do at all	31 (10.4)	4 (5.9)	27 (11.7)	
Walk several blocks				
Not at all difficult	195 (65.4)	54 (60.3)	141 (61.3)	$\chi^2 = 10.871$
A little difficult	18(6.0)	3 (13.2)	15 (6.5)	
Somewhat difficult	25 (8.4)	6 (10.3)	19 (8.3)	
Very difficult	18 (6.4)	2 (10.3)	17 (7.4)	
Cannot do at all	39 (13.1)	3 (5.9)	36 (15.7)	
Participate in social activities				
Not at all difficult	223 (74.8)	60 (88.2)	163 (70.9)	$\chi^2 = 13.087$*
A little difficult	25 (8.4)	6 (8.8)	19 (8.3)	

(*continues*)

Table 5. Activity Limitations (*Continued*)

Outcome Measures	*n* (%) of Measure	Nonadherent, *n* (%) of Measure	Adherent, *n* (%) of Measure	
Somewhat difficult	14 (4.7)	1 (1.5)	13 (5.7)	
Very difficult	6 (2.0)	1 (1.5)	5 (2.2)	
Cannot do at all	12 (4.0)	0 (0)	12 (100)	
Sadness in last 30 days				
All of the time	6 (2.0)	4 (1.7)	2 (2.9)	$\chi^2 = 5.685$
Most of the time	7 (2.3)	6 (2.6)	1 (1.5)	
Some of the time	37 (12.4)	29 (12.6)	8 (11.8)	
A little of the time	52 (17.4)	35 (15.2)	17 (25.0)	
None of the time	196 (65.8)	156 (65.9)	40 (58.8)	

*$p < .05$. **$p < .01$.

Of those 192 reporting joint symptoms, 119 (62%) said that symptoms interfered with some aspect of activity in those preceding 30 days. Those adhering to alcohol use recommendations were significantly more likely to report limitations ($\chi^2 = 6.788$, $p = .03$). These limitations include being less likely to be able to walk up a flight of stairs ($\chi^2 = 13.687$, $p = .03$) or push or pull large objects ($\chi^2 = 19.083$, $p = .004$). They were significantly more likely ($\chi^2 = 13.087$, $p = .04$) to report limited participation in social activities.

Two thirds of persons rated their health as the same as 12 months prior. The remaining persons almost equally reported their health as better (18.5%) or worse (18.1%). There was no relationship between adherence to alcohol use recommendations and health rating. Those who were adherent spent significantly more time on bed rest ($t = 1.928$, $p = .05$). Those who followed alcohol use recommendations spent an average of 30.03 days on bed rest, whereas those who were adherent spent an average of 8.32 days on bed rest.

About 40% ($n = 124$) of persons reported being employed during the previous 12 months. Of those 124 persons, there was no significant difference between the groups in terms of number of workdays lost ($t = 1.434$, $p = .153$). Those who followed alcohol use recommendations lost an average of 18.71 ($SD = 114.4$) workdays, with 3.56 of those days being on bed rest. Those who did not follow alcohol use recommendations lost 6.89 ($SD = 30.5$) workdays, with 2.19 of those days being on bed rest.

Discussion

The first purpose of this study was to determine the extent that patients with gout adhere to ACR alcohol use recommendations. Although the adherence rate here was higher than that reported in other studies, almost one fourth of patients were not adhering to alcohol use recommendations. The pattern of adherence is consistent with reports of medication adherence in patients with gout and other chronic illnesses, with nonadherence most likely in younger persons, especially younger males (De Vera et al., 2014; Harrold et al., 2009). Potential explanations are that younger patients with gout may lack experience in managing a chronic condition or lack knowledge regarding the seriousness of gout. They may have experienced few gout attacks or do not have tophaceous gout, the presence of which has been associated with higher medication adherence (De Vera et al., 2014).

Contrary to other studies, the only relationship here between alcohol use and joint pain in the past 30 days was in those younger than 40 years, with those who used excess alcohol reporting increased joint symptoms. This relationship was not present, though, in the 41–60 years age group. Those who were adhering to alcohol use recommendations were more likely to report activity limitations. Because these patients were overall older, it is possible that the limitations are the result of increasing functional disability associated with elevated serum uric acid levels and chronic gout (Scirè et al., 2013; Shields & Beard, 2015). Given the number of younger patients who use excess alcohol and their likelihood of not seeking care for joint symptoms, it is possible that the activity limitations reported by the older patients are a result of their history of alcohol use and lack of care. There may also be a decline in general health associated either with age or with the presence of concurrent medical conditions, such as osteoarthritis, believed to have an increased prevalence and severity in patients with gout (Howard et al., 2015).

The lack of joint pain in younger, adherent patients does lend support to ACR guidelines that patients with gout can safely consume up to two drinks per day for males and one drink per day for females. Drinking at this level may offer those with gout the protective effects presumed to be associated with moderate alcohol consumption. Numerous studies suggest protective effects against ischemic stroke, metabolic syndrome, peripheral vascular disease, and coronary heart disease, conditions that are common in those with gout.

A disturbing finding was that just over half of the patients reported not receiving care for their joint symptoms despite knowledge of their having gout. A regular relationship with a primary healthcare provider improves adherence rates with gout therapy. Without contact, patients are less likely to have controlled gout, leading to suboptimal outcomes (Holland & McGill, 2015; Shulten et al., 2009). Here, those who did adhere to the ACR guidelines were more likely to have sought

care from a provider, suggesting that overall adherence is, in part, due to patient education and the patient–provider relationship. Because age was negatively related to seeking care, it is possible that the younger patients had fewer symptoms and comorbid conditions, so they felt less of a need to visit a provider. Not seeking care may also reflect common misconceptions that gout is not a serious condition or is self-limiting.

This study does have a few major limitations. First, there was no way to assess in this analysis the effect of specific alcoholic beverages or the presence of alcohol use disorder on symptoms. The possibility does exist that the type of alcoholic beverage consumed may have played a role or that some persons may have been addicted to alcohol and had a different perception of activity limitations. Second, there was no control for the use of urate-lowering therapy, which may have been a factor in symptoms.

Studying the relationship between adhering to alcohol use recommendations and the influence on gout symptoms is ethically challenging. In a prospective control group study associated with a conventional clinical trial, selecting an experimental group poses a serious problem. One would have to choose subjects from a pool of patients with chronic gout, have them purposefully intake varying levels of alcohol, and monitor subsequent symptoms. Another approach would be to recruit persons with gout, allow them to make their own decisions regarding alcohol use, and monitor symptoms.

Recommendations

To promote optimal patient outcomes, more attention needs to be given to patient education and self-management interventions that follow the ACR recommendations. Providers should deliver individualized education and lifestyle advice in conjunction with the appropriate urate-lowering therapy. Education should include information on gout, its signs and symptoms, and treatment. Providers need to stress the importance of regular visits, discuss the patient's perception of gout, and review the relationship between disease progression and long-term adherence to therapy.

All patients need to be screened for alcohol use. Stress the need to avoid excess alcohol consumption and review with the patient the need to follow ACR recommendations, tailoring the message based on the patient's specific needs. Encourage patients to share their perceptions of their illness and the role of alcohol consumption in their life. This will allow the provider to identify and address any potential barriers to following recommendations and help promote patient adherence. In particular, those who encounter younger, male patients with gout need to be alert to the higher potential for nonadherence, perform appropriate screenings, and be prepared to offer any needed guidance, supportive care, and referrals if needed.

Providers should be proactive in providing guidance to those who are not adhering to alcohol use recommendations. Review the alcohol use recommendations and discuss the patient's willingness to reduce consumption to a safe level. Ask whether they would like to change their alcohol usage. Offer support and guidance in identifying appropriate resources to assist the patient in reducing alcohol use.

Several areas warrant further research. Further research is needed into the reasons persons do not adhere to alcohol use recommendations. Having a better understanding of these reasons is important in developing targeted interventions for providers to use to support patients and promote adherence. Overall, research regarding interventions to support adherence and education specifically targeting younger patients, possibly the newly diagnosed, would be helpful. This could include patient suggestions on how best to provide education information, the use of mobile applications to manage gout, and promoting optimum patient–provider interactions.

Conclusion

Although findings support that patients with established gout follow ACR recommendations regarding alcohol use, more still needs to be done to empower patients to make lifestyle changes and ensure they understand the importance of adhering to alcohol use recommendations. Providers should continue to integrate management strategies that encompass patient education regarding lifestyle changes as well as pharmacological management to achieve optimal patient outcomes.

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