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Initial development of a survey tool to detect issues of chemical coping in chronic pain patients

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ABSTRACT

Objective: Completely compliant drug-taking behavior is associated with opioid therapy that is usually highly beneficial to the pain patient, whereas frequent and severe aberrant behavior is generally associated with therapy that is potentially harmful to the patient and borders on addiction. There is a large group of patients in the middle between these two extremes: those who display aberrant behaviors periodically, who may additionally have a mixed response to opioid therapy, the overall results of which are less than satisfying (often in the domain of functionality) to the clinician. We have used the term *chemical coping* to describe this vast middle ground and seek to begin a line of research starting with the development of a clinically useful tool to identify this subset of patients.

Methods: A background review is provided to highlight the need for better understanding of chemical coping. In addition, the first steps in creating a chemical coping tool are discussed, including the results of focus group interviews to determine the clarity, understandability of the items, and to assure that they are not objectionable or offensive. A total of 15 patients and 15 professionals completed this phase of the project.

Results: Both the professionals and patients reported that the items were generally clear and understandable. In addition, although the items cover potentially sensitive topics and some were designed with a provocative edge, the respondents had few requested changes. The researchers are moving forward with the next phase of research.

Significance of results: The middle ground between compliant medication use and addiction, which we call *chemical coping*, is poorly understood and woefully underresearched. Despite this gap in our knowledge base, it is an often observed phenomenon. Creating a tool to identify these characteristics can lead to better treatment outcomes and earlier interventions to help improve compliance with medication regimens.

KEYWORDS: Chemical coping, Pain management, Opioids, Addiction

INTRODUCTION

Much of the research on the topic of addiction in pain has focused on the prediction, assessment, and treatment of substance use disorders (Comfort et al., 2003; Dekel et al., 2004; Bottlender & Soyka, 2005; Schuckit et al., 2005). However, there is a vast gray area between the extremes of compliance (beneficial opioid therapy) and addiction (harmful opioid therapy); clinically any harm associated with this "subdiagnostic" level of misuse is subtle. Patients who fall into this gray area are not likely to display aberrant behaviors that rise to the level of compulsivity or loss of control, nor are they likely to be driven by

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cravings in a fashion that would make a clinician concerned about addiction. Bruera et al. (1995) coined the term *chemical coping* to describe a pattern of maladaptive coping through drug use that they observed in patients struggling with the stress of end-stage cancer. They noted that these patients often had histories of alcohol and drug abuse and that, under the onslaught of physical and emotional distress caused by their cancer, they often requested and received large amounts of centrally acting medications. Bruera described these patients as having limited coping repertoires and a tendency to experience distress physically. We believe it is important to apply this concept to noncancer pain and that it is an understudied phenomenon, especially when patients are being considered for long-acting, short-acting, and/or combination opioid therapy.

Definition of a Chemical Coper

Over the collective years of working with pain patients, our group began this inquiry by making explicit the clinical features of chemical coping. Simply put, chemical copers occasionally use their medications in nonprescribed ways to cope with stress. In addition, the hallmark of chemical coping is the overly central place occupied by the procurement of drugs for pain and inflexibility about nondrug components of care. Medication use becomes central to life, whereas other interests become less important. As a result, chemical copers in treatment often fail to move forward toward stated psychosocial goals. They are typically uninterested in treating pain or coping with pain nonpharmacologically. As a manifestation of chemical coping, these patients remain on the fringe of appropriate use of their medication. They occasionally self-escalate their medication dosage in the setting of stress and sometimes need to have prescriptions refilled early. Chemical coping can complicate opioid therapy, but many chemical copers are able to comply with their physician's opioid agreement enough to avoid being removed from treatment. We have set out to elaborate this phenomenon and develop a clinically relevant assessment tool to identify these patients.

Chemical Coping: Associated Features

Self-Medication

The self-medication hypothesis of drug abuse was proposed by Khantzian (1985, 2003) and states that two aspects must be present. First, the patient must be abusing a substance because it in some way relieves a state of distress. Second, the self-medication hypothesis states that there is usually a tendency for pharmacological specificity in the patient's preferred drug class. Opiates are prime candidates for self-medication due to their generally calming and normalizing effects. They tend to assuage feelings of rage as well as the disruption these feelings can have on interpersonal relationships. One idea posed by Richman et al. (2001, 2002) suggests that people who have attempted to use active coping techniques, which have subsequently failed, in order to escape harassment are prone to look for escape and self-medication of their problems through the use of alcohol.

Similarly, Markou et al. (1998) promoted a self-medication hypothesis specifically tying depression and drug dependence together. They argue that depression has neurobiological effects that are similar to those seen from withdrawal syndromes from alcohol or opiates. As an example, they cite that depression is characterized by changes in dopamine, norepinephrine, and corticotrophin-releasing factors in a fashion similar to that seen from either alcohol or opioid withdrawal. Therefore, patients with an underlying depression might be prone to start using alcohol or opioids in an unconscious attempt to self-correct these dysfunctional systems.

Sensation Seeking

Sensation seeking is the tendency to seek varied, novel, complex, and intense experiences and sensations and the willingness to take physical, social, legal, and financial risks for the sake of such experiences. Many researchers have found a strong relationship between sensation seeking and substance use and abuse (Ratliff & Burkhart, 1984; Jaffe & Archer, 1987; von Knorring et al., 1987; Andrucci et al., 1989). Sensation seeking has also been linked to opioid dependence specifically (Luthar et al., 1992; Kosten et al., 1994; Franques et al., 2003). Sensation seeking is not an avoidance strategy like chemical coping; instead it is a desire to experience "altered consciousness." Generally, males score much higher on scales of sensation seeking than women. This idea has yet to be studied and will add tremendous insight to issues related to pathways of misuse of opioids in pain management that may be gender specific for women (chemical coping) and men (sensation seeking).

Alexithymia and Somatization

Alexithymia is a useful construct for identifying patients who are not emotionally connected and will likely present with somatic complaints (Sifneos, 1972, 1996). Alexithymia is an issue wherein the patient is unable to process or understand the emotions they are clearly feeling. Given a long enough period of negative affect without the ability

to discharge or neutralize these feelings, it is not surprising that bodily systems become involved (Taylor et al., 1991). This effect has been noted in both addict and chronic pain populations (Lumley et al., 1994; Cook et al., 2004; Kenny & Markou, 2004; Wasan et al., 2005; Zautra et al., 2005; Thorberg & Lyvers, 2006).

Somatization is a complex problem in which a person purports to have physical complaints for which there is no known cause. In short, it is seen as a psychological self-protection mechanism or tendency for people to turn psychological distress into bodily complaints. Part of the difficulty in identifying somatization problems lies in the fact that patients may be facing genuine physical issues of an unknown pathology or the professional might be encountering the syndrome as a result of conscious or unconscious psychological processes (Avila, 2006).

Of note, psychodynamic writings about substance abusers have described them as possessing dedifferentiated affect arrays (Krystal & Raskin, 1970). This is an associated feature of alexithymia as well as a tendency toward the notion of drug use as a means of self-medication (Wikler, 1980; Khantzian, 1997). There is some question, however, as to whether the tendency for some patients to treat psychiatric distress with medications such as opioids is a means of coping with untreated depression and negative affect or whether the negative affect arises as a result of the drug use (Vaillant & Milofsky, 1982; Schuckit & Hesselbrock, 1994). With this background in place, we set out to create a clinically meaningful assessment tool for identifying chemical coping in pain patients.

Gender Differences in Chemical Coping

Theoretically, there may be gender-based differences in substance use; our clinical experience points to the possibility that more women than men might be expected to be classified as "chemical copers," but no attempts to date have been made in the pain literature to measure, quantify, and study chemical coping and describe this large middle ground of chronic pain patients. Previous research has established that men and women use substances for different reasons (Weiss et al., 2003). Women often use intoxicating substances as an avoidance coping strategy. Some experts believe that drug abuse can be viewed as maladaptive strategy for coping with stress temporarily. Women tend to use emotion-focused and avoidance-based coping strategies more often than men, so women may use drugs to alleviate anxiety, depression, and stress more frequently than men. In addition, women substance abusers have been shown to use drugs in attempts to self-medicate physical or psychological pain more frequently than men (Clayton et al., 1986; Lex et al., 1989, 1994). In other words, women may be more prone to fall into the category of "chemical copers" than men. Men, on the other hand, often use drugs and alcohol to avoid boredom and to engage in sensation seeking (Grunberg et al., 1991). Men who are physically ill and/or physically restricted may experience more boredom than men who are physically active. Cancer pain patients and nonmalignant chronic pain patients both experience considerable disability and restriction of daily activities.

In summary, we believe that a group of patients can be reliably and validly assessed for a brand of aberrant behavior that falls between compliant behavior and out of control/compulsive/craving-driven/harmful behaviors that constitute true addiction and often result in termination of opioid therapy. These patients continue in opioid therapy but they may require approaches that are distinct from those employed with patients at either end of the drug-taking continuum (see Discussion).

The review of the literature above highlights some of the important clinical and theoretical features of this concept. The relationship between addiction and chemical coping might be best summarized as follows: "All addicts are chemical copers but not all chemical copers are addicts."

The rest of this article focuses on our initial efforts to try to develop a tool to measure this construct.

METHOD

Participants

A total of 15 physicians and 15 pain patients completed this initial phase of this Western IRB-approved project. The physicians were all pain management specialists identified by the research team and consultants. The patients were recruited from the Integrative Treatment Center located in Denver, Colorado. The patients represent a convenience sample taken from a population of patients who had received either a spinal cord stimulator or an implantable pain pump. A decision was made to pull participants specifically from this subsample of the patients seen at the center so that they would not be approached again in the next phase of the trial, which will not include stimulator or pump patients.

Instruments

A group of pain physicians and experts in pain management and addiction were consulted and asked to create a list of items and topic areas that highlighted the core aspects of chemical coping. From these

initial meetings, a series of items were created and refined. Items were generated to fit into the following six categories: self-treatment, overly drug focused, not making progress, alexithymia/somatization, sensation seeking, and tendency toward accidental overmedication. A total of 38 items were generated and ultimately kept in the current version of the measure. The Chemical Coping Index Tool Evaluation (CCITE), which can be seen in Figure 1, contains the 38 items. The CCITE represents the format given to the 30 participants in this phase of the project.

Procedure

Participants from the aforementioned groups were approached and asked to give their informed consent to participate in this phase of the trial. After this was obtained, they were given the CCITE along with instructions on how to complete the evaluation of the items (see Fig. 1). Participants were specifically instructed to read the items for issues of clarity and understanding. In addition, they were asked to rate whether any of the wording was objectionable or offensive in some way. Participants were given ample space to add additional comments they felt were relevant. Results were then entered into a spreadsheet and the findings were discussed among the research team to determine if changes were necessary before beginning the next phase of the trial.

RESULTS

Overall, very few comments or issues were raised regarding the tool at this stage of its development. Several respondents requested grammatical changes (i.e., changing "bad" to "badly" for item #2), which have been incorporated when appropriate. Similarly, 8/30 felt it would be more understandable to have the word "pain" before the word "medications" for items #14, 20, and 31. This, too, has been incorporated for the next phase of development. Finally, there were scattered requests to clarify terms such as "zombie," "shrink," or "stiff drink" when they appeared in the survey items. This was also accompanied by feedback that these terms might be deemed to be offensive to some respondents. However, this is in line with initial expectations for these items, as they were designed to carry emotional contexts and baggage. Therefore, terms were clarified but otherwise kept intact.

Surprisingly, few found the items objectionable or offensive. One participant stated that "I have no problems with any of the questions or statements," which was mirrored by another respondent who stated that "none are objectionable or offensive. ... These questions make me feel that someone cares about me in my pain." Although the tendency was to view items as acceptable, one participant did note that it might be too easy to read through the items and possibly lead to dishonest reporting on the items. This will have to be evaluated as the project progresses.

DISCUSSION

We have attempted to expand on a theory of patient behavior that is seen all too often in chronic pain patients of all types and is only rarely labeled correctly. In addition, we have begun the initial stages of item development and refinement of a tool that we feel can provide enormous clinical impact to physicians providing pain management services. Specifically, identifying chemical copers in an *a priori* fashion will help to develop appropriate treatment plans. Drug selection in problematic patients is often limited to sustained-release delivery to avoid feeding into compulsive pill popping and/or use of opioids in the service of chemical coping (Bruera et al., 1995). The treatment approach might rely mainly on the use of long-acting opioids with a deemphasis on drug taking as a way of managing pain throughout the day. The flare management philosophy (Whitten et al., 2005) is often used in lieu of drug-oriented approaches to break through pain for this group of patients. The emphasis here is for the patient to learn to consider psychological and other forms of dealing with pain spikes as opposed to *ad lib* drug taking that has a tendency to become hard to manage for such patients. Psychotherapy and rehabilitative approaches are particularly important for this group of patients. They often will not advance in terms of psychosocial functioning unless their coping repertoires are improved. Deconditioning must be overcome and motivation for multiple lifestyle changes must be instilled so that the patient can regain the vitality to live fully with the disease of chronic pain and find a sense of purpose and meaning.

Conclusion

Chemical coping is poorly understood and woefully underresearched. Despite this gap in our knowledge base, it is an often observed phenomenon. It is generally seen in patients who are amotivated and problematic but not frankly addicted. Specialized approaches to treatment planning must be put into play to allow these patients to derive some benefit from drug therapies while also providing them the rehabilitative experience they will need to live a full and purposeful life with their chronic pain. We hope to add clarity to this endeavor through the

Directions: Provide us with your opinion by ranking each item on a 5-point scale for the item's clarity and if it is understandable. Place a check mark in the appropriate column. Write suggestions for improvement in the comment section.

A ranking of 5 is *extremely clear/understandable*
A ranking of 4 is *very clear/understandable*
A ranking of 3 is *clear/understandable*
A ranking of 2 is *very unclear/not understandable*
A ranking of 1 is *extremely unclear/not understandable*

Item	Clarity					Understandable				
	1	2	3	4	5	1	2	3	4	5
1. I have taken my pain medicine when I didn't want to think about something that upset me										
2. Pain medicine helps me when I just feel bad										
3. I am always looking forward to my next dose of pain medicine										
4. I would never dream of using my pain medicines for anything other than pain										
5. I'm a thrill seeker										
6. I know more than my doctors do about how much pain medicine I need										
7. The amount of pain medication I need leaves me feeling like a zombie										
8. Most of the time I just don't know how I feel										
9. Seeing a shrink has no place in the treatment of real pain										
10. I have used my pain medicines to relieve anxiety										
11. My loved ones think I'm stoned half the time										
12. My pain makes it impossible to make plans										
13. My life is full and interesting										
14. Medication is the only thing that helps me										
15. I enjoy the way pain pills make me feel										
16. Nothing's better when you're stressed than a good stiff drink										
17. Without my pain medicines I would just die										

Directions: Provide us with your opinion by ranking each item on a 5-point scale for its clarity and if it is understandable. Place a check mark in the appropriate column. Write suggestions for improvement in the comment section.

A ranking of 5 is *extremely clear/understandable*
A ranking of 4 is *very clear/understandable*
A ranking of 3 is *clear/understandable*
A ranking of 2 is *very unclear/not understandable*
A ranking of 1 is *extremely unclear/not understandable*

Item	Clarity					Understandable				
	1	2	3	4	5	1	2	3	4	5
18. There's only 1 medication that helps my pain										
19. I have used my pain medicines to fall asleep even when I didn't have pain										
20. I need more than medications to help me with my pain										
21. I don't like doctors telling me what to do										
22. Sometimes I need my pain medications for everyday aches and pains										
23. With pain as bad as mine I shouldn't be expected to work										
24. Pain pills help me control my anger										
25. Physical therapy is worthless in the treatment of real pain										
26. My pain pills keep me from getting out and doing things										
27. Nobody asks me to do things with them anymore										
28. My pain pills make me feel better even if I don't have pain										
29. My pain is so bad that all I do is stay at home										
30. I take a pain pill when I get upset										
31. There are things I can do to help control my pain without taking medication										
32. Sometimes I don't know what I'm feeling but pain medicine just seems to help										
33. I have used my pain medicines to cheer me up										
34. Pain medicine gives me a sense of control										
35. Living with my pain is a full time job										
36. Seeing a psychologist may help me cope with my pain										
37. I would rather take a pain pill than talk with a friend about my feelings										
38. I have used my pain medicines to zone out at times										

Fig. 1. Chemical coping index tool evaluation.

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Directions: Provide us with your opinion by ranking each item on a 5-point scale as to the item being objectionable and offensive. Place a check mark in the appropriate column. Write suggestions for improvement in the comment section.

A ranking of 5 is *extremely* not objectionable/ not offensive
A ranking of 4 is *very not objectionable/not offensive*
A ranking of 3 is slightly objectionable/ offensive
A ranking of 2 is *very objectionable/offensive*
A ranking of 1 is *extremely objectionable/offensive*

Item	Objectionable					Offensive				
	1	2	3	4	5	1	2	3	4	5
1. I have taken my pain medicine when I didn't want to think about something that upset me										
2. Pain medicine helps me when I just feel bad										
3. I am always looking forward to my next dose of pain medicine										
4. I would never dream of using my pain medicines for anything other than pain										
5. I'm a thrill seeker										
6. I know more than my doctors do about how much pain medicine I need										
7. The amount of pain medication I need leaves me feeling like a zombie										
8. Most of the time I just don't know how I feel										
9. Seeing a shrink has no place in the treatment of real pain										
10. I have used my pain medicines to relieve anxiety										
11. My loved ones think I'm stoned half the time										
12. My pain makes it impossible to make plans										
13. My life is full and interesting										
14. Medication is the only thing that helps me										
15. I enjoy the way pain pills make me feel										
16. Nothing's better when you're stressed than a good stiff drink										
17. Without my pain medicines I would just die										
18. There's only 1 medication that helps my pain										

Directions: Provide us with your opinion by ranking each item on a 5-point scale as to the item being objectionable and offensive. Place a check mark in the column that is your ranking. Write suggestions for improvement in the comment section.

A ranking of 5 is *extremely* not objectionable/ not offensive
A ranking of 4 is *very not objectionable/not offensive*
A ranking of 3 is slightly objectionable/ offensive
A ranking of 2 is *very objectionable/offensive*
A ranking of 1 is *extremely objectionable/offensive*.

Item	Objectionable					Offensive				
	1	2	3	4	5	1	2	3	4	5
19. I have used my pain medicines to fall asleep even when I didn't have pain										
20. I need more than medications to help me with my pain										
21. I don't like doctors telling me what to do										
22. Sometimes I need my pain medications for everyday aches and pains										
23. With pain as bad as mine I shouldn't be expected to work										
24. Pain pills help me control my anger										
25. Physical therapy is worthless in the treatment of real pain										
26. My pain pills keep me from getting out and doing things										
27. Nobody asks me to do things with them anymore										
28. My pain pills make me feel better even if I don't have pain										
29. My pain is so bad that all I do is stay at home										
30. I take a pain pill when I get upset										
31. There are things I can do to help control my pain without taking medication										
32. Sometimes I don't know what I'm feeling but pain medicine just seems to help										
33. I have used my pain medicines to cheer me up										
34. Pain medicine gives me a sense of control										
35. Living with my pain is a full time job										
36. Seeing a psychologist may help me cope with my pain										
37. I would rather take a pain pill than talk with a friend about my feelings										
38. I have used my pain medicines to zone out at times										

Fig. 1. *Continued.*

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continued development of our novel measure of chemical coping.

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