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Screening for Current Opioid Misuse and Associated Risk Factors among Patients with Chronic Nonalcoholic Pancreatitis Pain

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Abstract

Objective—The objective of this study is to assess clinical variables that may be associated with risk for opioid misuse in individuals with chronic pancreatitis.

Design—This study utilized a descriptive, quasi-experimental, cross sectional design.

Setting and Patients—Three hundred seven individuals with nonalcoholic chronic pancreatitis engaged in chronic opioid therapy for pain presented to an outpatient specialty clinic at an academic medical center.

Measures—Participants completed the Current Opioid Misuse Measure (COMM), Brief Pain Inventory (BPI), Short Form (SF)-12 Quality of Life Measure, Center for Epidemiological Studies 10-item Depression Scale (CESD), and a single item asking about current alcohol use. Mean scores on the CESD, COMM, BPI, SF-12, and factors associated with opioid misuse measures from regression analyses were the outcome measures.

Results—Mean scores on the CESD, COMM, BPI pain-on-average item, and the SF-12 physical and psychological quality of life factors (*t* scores) were 11.2 (standard deviation [SD] = 6.7), 8.5 (SD = 7.3), 4.8 (SD = 2.8), 39.7 (SD = 7.0), and 45 (SD = 9.0), respectively. Descriptive analyses revealed that 55% of participants scored above the clinical cutoff for depression on the CESD, and 39% scored above the cutoff for opioid misuse concerns on the COMM. Regression analyses identified several factors associated with higher opioid misuse measure scores, including increased depressive symptoms from the CESD ($\beta = 0.38$, $P < 0.0001$), increased pain rating at the time of the office visit ($\beta = 0.16$, $P = 0.03$), impairment of psychological quality of life ($\beta = -0.27$, $P = 0.001$) and endorsement of alcohol use ($\beta = 0.16$, $P = 0.03$). These factors accounted for 37% of the variance in current opioid misuse scores.

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Conclusions—Depression, quality of life, pain intensity and alcohol use may be good candidate variables for prospective studies to determine clinical risk factors for opioid misuse among patients with pancreatitis.

Keywords

Opioids; Pancreatitis; Pain

Introduction

Pain is a prevalent issue in patients with chronic pancreatitis, with up to 95% of patients experiencing pain along the course of the disease [1]. Recent US epidemiology studies estimate incidence of chronic pancreatitis between four and eight cases per 100,000 patients [2,3]. A variety of treatments is available for chronic pancreatitis, with surgical intervention being among the most effective treatments [4,5]. However, residual pain can be challenging to treat, with a majority of patients having continued opioid requirements, even after surgical intervention [4–6].

Opioid analgesics have become the most commonly prescribed medication of any category in the United States [7]. Unfortunately, as prescriptions for opioid analgesics have increased substantially over the past decade [8,9], so has the incidence of opioid analgesic misuse, dependence, and unintentional fatalities [10–14]. Prior studies cite nonmedical use of opioids in up to 25% of patients on chronic opioid therapy [8,15–19]. This challenges medical providers to continually weigh the risks and benefits when prescribing opioids to treat pain in patients with conditions like chronic pancreatitis.

Opioid use is common in patients with chronic pancreatitis, with 66% of chronic pancreatitis patients taking opioids in a recent study [20]. It is also known that the chronic pancreatitis population has an increased prevalence of several risk factors for opioid misuse [21–23], including pain, smoking [24], mental health problems [25,26], and substance use disorders [27]. However, actual measurement of potential opioid misuse has not been described in this high-risk population. The present study assessed psychosocial variables that may be associated with chronic pain and potential opioid misuse in a sample of individuals diagnosed with nonalcoholic chronic pancreatitis. It was hypothesized that potential opioid misuse would be associated with comorbid depressive symptoms, quality of life, current alcohol use, and pain.

Methods

The research design was cross sectional, and self-report data were collected from a convenience sample of 307 patients with nonalcohol-related, intractable pancreatitis, who were all on chronic opioid therapy for pancreatic pain (at least 6 months), and who were engaged in a clinical care program. Patients were categorized as “nonalcoholic” as their primary etiology for pancreatitis. During their initial visit to a tertiary care specialty clinic (Digestive Disease Center) at a large southeastern medical university, all patients used a Web-based computer psychosocial screening system to complete the following validated scales: Current Opioid Misuse Measure (COMM), the Brief Pain Inventory (BPI), the Short-

Form (SF)-12 Quality of Life Measure (SF-12), the Center for Epidemiological Studies 10-item Depression Scale (CESD), and a single item asking about current alcohol use.

Developed by experts in pain and addiction, the COMM is a 17-item self-report measure used to identify those patients taking opioids who have indicators of current medication misuse (defined as use in a manner other than how it is indicated or prescribed) [28,29]. The COMM asks patients to describe how they are currently taking their medication, with each question asking the relative frequency of a thought or behavior over the past 30 days from 0 = never to 4 = very often. Acknowledging that patients who misuse their medications might fear being completely truthful when discussing medication misuse, many of the items on the COMM were made less transparent by subtly relating to misuse and offering a 1 = seldom option, thus decreasing the chance that the patients will falsify all of their answers. The COMM has been validated and cross validated in patients treated in specialty pain management clinics, and a score of 9 or greater was determined to be suggestive of prior 30-day prescription opioid misuse [28,29]. When tested in a primary care population, a cutoff value of 13 was found to be predictive of a "prescription drug use disorder," defined as meeting criteria for prescription drug abuse or dependence from the Composite International Diagnostic Interview [30]. As our chronic pain patients were within a specialty clinic and similar to those in specialty pain clinics with regard to pain severity, pain chronicity, and opioid dosing, a cutoff of 9 was determined to be appropriate for this study.

The BPI is a nine-item self-report measure that asks about location, relief, and interference of pain and has been validated in cancer and noncancer pain populations [31]. The SF-12 is a brief, reliable 12-item screening tool that measures eight domains of health and overall health status [32]. The CESD includes 20 items comprising six scales reflecting major dimensions of depression that has been shown to be a reliable measure for assessing the number, types, and duration of depressive symptoms across racial, gender, and age categories [33]. The data were collected in a private physician office while the patients were waiting for the physician to come into the room for consultation. Nursing staff was available to help patients log in to the system and to assist with completion of the online questionnaires if necessary. No patients declined to provide data.

Data were collected as part of routine clinical care, and IRB approval was attained in order to report the data in aggregate for the purposes of this study. Linear regression (SPSS v21.0, SPSS Inc., Chicago, IL, USA) was used to examine psychosocial factors associated with COMM scores. Potential factors were identified from the battery of psychosocial measures administered at the time of the visit. Depression scores (CESD), pain numeric rating scale scores (0–10) from the BPI at the time of the visit, psychological quality of life (from the SF-12), and endorsement of alcohol use (yes/no) were examined as possible factors associated with opioid misuse.

Results

A total of 307 patients with a primary diagnosis of nonalcohol-related intractable pancreatitis engaged in chronic opioid therapy for pancreatic pain participated in the study (Table 1). Participants had been diagnosed with pancreatitis for at least 6 months, and

predisposing factors for the development of nonalcohol-related chronic pancreatitis in this clinic population include sphincter of Oddi dysfunction, pancreatic divisum, familial, medication, and idiopathic. The sample was 39% men. The mean (standard deviation [SD]) age of the sample was 51 (SD = 13.8). Patients indicated their relationship status as 55% married, 13% divorced, 18% single, 6% widowed, and 3% "other" (remainder did not answer). Patients took an average of 11.2 (SD = 20) minutes to complete the computerized questionnaires.

A majority of the sample (71%) indicated experiencing nausea/vomiting, 52% experienced diarrhea, 65% experienced weight loss, 72% experienced loss of appetite, and 11% experienced jaundice. Few patients indicated that they were able to work full time (14%), worked while taking multiple sick days (7%), or were only able to work part time (11%). The majority of patients (68%) reported that they were unable to work due to chronic abdominal problems. Most patients (83%) reported having abdominal pain several times per week or daily, and 82% reported taking opioid pain medication several times per week or daily. The mean number of inpatient hospital admissions for pain or nausea/vomiting in the previous 12 months was 1.4 (2.7) (Table 1).

The mean (SD) CESD score of the sample was 11.2 (6.7). Mean scores on the COMM, BPI pain-on-average item, and the SF-12 physical and psychological quality of life factors (t-scores) were 8.5 (7.3), 4.8 (2.8), 40 (7), and 45 (9), respectively. Descriptive analyses revealed that 55% of participants scored above the clinical cutoff for depression on the CESD (10 points or higher), and 39% scored above the cutoff for opioid misuse concerns (9 points or higher) (Table 1).

Regression analysis indicated that several factors were uniquely associated with opioid misuse measure scores among patients with pancreatitis (Table 2), including depression score from the CESD ($\beta = 0.38$, $P < 0.0001$), pain rating at the time of the office visit ($\beta = 0.16$, $P = 0.03$), psychological quality of life ($\beta = -0.27$, $P = 0.001$), and endorsement of the use of alcohol ($\beta = 0.16$, $P = 0.03$). The model was significant ($F(4,118) = 19.03$, $P < 0.0001$), and these factors accounted for 37% of the variance in current opioid misuse scores. Demographic variables were not significantly related to depressive symptoms, pain, quality of life, or COMM.

Discussion

This study is the first to describe risk for opioid misuse among a group of chronic pancreatitis patients on an opioid therapy regimen. In this group, notably with primarily nonalcoholic etiologies for their chronic pancreatitis, pain was prevalent, with 83% of the participants reporting pain several times per week or daily, and 82% taking opioids several times per week or daily. This exceeds the prevalence of reported pain and opioid use in other chronic pancreatitis populations [20] and likely reflects the severity of disease seen at this tertiary care specialty clinic.

Thirty-nine percent of this group exceeded the clinical cutoff for current potential opioid misuse on the COMM. This is comparable with that detected in specialty pain clinics or

workers' compensation populations, where 42% and 46%, respectively, screened positive on the COMM [29,34]. Therefore, these findings suggest that the risk for opioid misuse in this population is appreciable and consistent with other high-risk patient populations.

Additionally, most of these patients (55%) also exceeded the clinical cutoff for significant depressive symptoms. This is similar to the prevalence of mood disorders reported in other chronic pancreatitis populations [20]. This study confirmed that, in this unique population, similar to other chronic opioid populations, the experience of depressive symptoms is associated with increased potential for opioid misuse. Prospective studies are needed, but this preliminary evidence, along with previous studies in general chronic opioid populations [8,22], highlights the importance of screening for and treating comorbid depression in patients with chronic pain, especially those on opioids, as these comorbidities can place patients at increased risk for substance misuse and overdose [21,35,36]. The significant comorbidity of potential opioid abuse and depression highlights the complex and high-risk nature of this population and suggests that comprehensive and/or multidisciplinary care might be indicated.

Psychological quality of life is often impaired in patients with chronic pancreatitis [25], and the present study highlighted that reduced psychological quality of life may also be associated with increased potential for opioid misuse. As the current study was cross sectional in nature, the direction of causality cannot be determined; therefore, future prospective studies should aim to clarify whether diminished quality of life predisposes one to potential opioid misuse or whether opioid misuse leads to reports of reduced quality of life. Findings regarding quality of life may also be confounded by the association of current pain with potential opioid misuse as pain can also severely affect psychological quality of life.

Finally, alcohol abuse is the most common etiology of pancreatitis, occurring in approximately 55–80% of patients [37]. Recent studies suggest that heavy alcohol use (as well as smoking) can contribute to recurrent pancreatitis [23] and that the nonmedical use of opioids is associated with alcohol use/abuse [17]. Although the population in this study had primarily nonalcoholic etiologies for their disease, overlap in etiologies does exist. Abstinence from alcohol is generally recommended for all patients with pancreatitis. In this study, self-reported alcohol use was associated with potential opioid misuse which suggests that screening for current alcohol use can be a relatively quick and important assessment to make during an office visit. Noting continued use of alcohol in any amount, especially despite persistent pain, nausea, and vomiting, can trigger clinicians to provide continued education and appropriate referrals for at-risk patients.

Often, clinicians cite limited time as a reason for not utilizing validated screening tools in office-based practice. The strengths of this study are the use of efficient, computer-based, validated screening tools that can be incorporated into a busy outpatient practice. A surprisingly high number of patients endorsed items on the COMM in this study. Given the tendency of individuals struggling with substance dependence to minimize drug misuse, this likely underrepresents the problem in this population [36]. As the computerized measures were completed by patients in a relatively short period of time with minimal staff assistance,

this may offer clinicians another means of quickly identifying patients who appear at high risk for opiate misuse, but this warrants further study.

The limitations of this study include its cross-sectional design and the exploratory nature of the statistical data and analysis. Additionally, the COMM is a screening tool with a sensitivity of 77% and specificity of 68% for determining risk for opioid misuse [28]. Exceeding the cutoff prompts the clinician to further assess for opioid misuse, but false positives are possible, and the COMM does not prove actual opioid misuse. Similarly, false negatives are also a possibility, which could be equally problematic in missing patients who are at risk. Also, as with many self-report measures, patients may have a tendency to underreport symptoms, especially if they fear repercussions from their prescriber [38].

This study is the first to describe opioid misuse measures and depression in patients with chronic pancreatitis and suggests that both are important issues in this population in need of further study. The study also suggests that depression, quality of life, pain intensity, and alcohol use may be good candidate variables for more prospective studies geared toward determining psychosocial risk factors for opioid misuse among patients with pancreatitis.

This study, with a relatively large sample size of 307 patients, provides two unique contributions to our current understanding of nonalcoholic pancreatitis. First, this study underscores that among patients with nonalcohol-related pancreatitis, pain can persist despite treatment with opiate therapy. Second, this study demonstrates that patients are willing to identify multiple risk factors contributing to chronic pain and opiate misuse using a tool which busy clinicians can easily integrate into their practice. Future research should focus on more rigorously testing the feasibility of this office-based, computerized approach in order to mitigate these variables which contribute suffering in those with chronic pancreatitis.

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Table 1

Demographics and baseline characteristics

	N (307)	%
Female	120	39
Married	70	23
Nausea/vomiting	218	71
Diarrhea	160	52
Weight loss	200	65
Appetite loss	222	72
Jaundice	33	11
Full-time work	44	14
Unable to work due to abdominal pain	208	68
Abdominal pain several times a week or more	256	83
Opioid medications several times a week or more	251	82
$CESD_1$ 10 or more	167	55
$COMM_2$ 9 or more	120	39
	Mean (SD)	
Age	51 (13.8)	
Time to complete survey (minute)	11.2 (20)	
Hospitalizations in past 12 months for pain, nausea, or vomiting	1.4 (2.7)	
$CESD_1$	11.2 (6.7)	
$COMM_2$	8.5 (7.3)	
BPI_3 pain on average	4.8 (2.8)	
SF-12 physical QOL_4	39.7 (7)	
SF-12 psychological QOL_4	45 (9)	

BPI = Brief Pain Inventory (BPI); CESD = Center for Epidemiological Studies 10-item Depression Scale; COMM = Current Opioid Misuse Measure; SD = standard deviation; SF = Short-Form; QOL = Quality of Life.

Table 2

Factors associated with opioid misuse measure scores among pancreatitis patients

	Unstandardized β	Standard Error	β	*P* value
$CESD_1$ depressive symptoms	0.44	0.10	0.38	<0.0001
Pain rating at office visit	0.42	0.20	0.16	0.03
Psychological QOL_4	−0.22	0.07	−0.27	0.001
Endorsement of alcohol use	6.46	2.88	0.16	0.03

Additional variables tested in the model included marital status, sex, and age. None was significantly associated with opioid misuse measure scores.

CESD = Center for Epidemiological Studies 10-item Depression Scale; QOL = Quality of Life.