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Research paper

Comorbid psychiatric disorders in chronic pain patients with psychoactive substance use disorders

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summary

Previous research indicates that significant numbers of psychoactive substance use disorder patients have comorbid psychiatric disorders. Comorbidity between psychoactive substance use disorders and other psychiatric disorders has not previously been investigated in chronic pain patients (CPPs). The purpose of this study was to determine if this type of comorbidity exists within CPPs and if so, is it diagnostically the same as in other psychoactive substance use disorder populations.

Two hundred and eighty three consecutive CPP admissions to a pain facility received a semi-structured psychiatric interview based on DSM flowsheets. For the statistical analysis, these CPPs were broken down into three groups: (A) CPPs with a *current* drug use disorder diagnosis; (B) CPPs with a *current* alcohol use disorder diagnosis; (C) and CPPs with either (A) or (B) (above). These three groups were compared by χ^2 to the remaining CPPs for the frequency of each DSM diagnosis.

Results. Some DSM affective and personality disorder diagnoses were found to be more frequently associated with all three psychoactive substance use disorder groups versus the remaining CPPs. In addition, Intermittent Explosive disorder, a diagnosis frequently encountered with personality disorders was also more frequently associated with all three psychoactive substance use disorder groups than the remaining CPPs.

Conclusions. Psychiatric comorbidity is frequently found in CPPs diagnosed with psychoactive substance use disorders. This comorbidity generally relates to DSM Affective and Personality Disorders. These findings are similar to those reported in non-CPPs with psychoactive substance use disorders.

Key words: Chronic pain; psychiatric disorders; psychoactive substances.

introduction

The concept of 'comorbidity' was formally introduced by Feinstein[1] and refers to 'any distinct additional clinical entity that has existed or that may occur during a patient's clinical course who has the index disease under study'. Because failure to classify and analyze comorbid diseases may create misleading medical statistics and may cause spurious comparisons during the planning and evaluation of patient treatment,[2] there has been a dramatic promulgation of the comorbidity concept in psychiatry.[3] As a result, increasing attention has been paid in clinical and research settings, to comorbidity

between psychiatric disorders in general, and specifically between psychiatric disorders and psychoactive substance use disorders.

Impetus for the psychiatric investigation of the 'comorbidity' concept came from the American Psychiatric Association publication in the early 1980's of the Diagnostic and Statistical Manual of Mental Disorders, Third Edition, the DSM-III.[11] The DSM-III is a manual of mental disorders which contains a glossary of descriptions of each psychiatric diagnosis and operational criteria for arriving at each diagnosis. The purposes for developing the DSM-III were to provide an instrument which would be clinically and administratively useful, but most to provide a basis for research.[11] As such, the DSM-III in contrast to previous diagnostic and statistical manuals and the International Classification of Diseases and Related Health Problems, 9th Revision (ICD-9) provided specific operational diagnostic criteria as guides for making each diagnosis. In addition, the DSM-III recommended a five-axis multiaxial diagnostic system for recording of diagnostic information, the first three axis being the official diagnostic assessment. In this system, Axis I is to be utilized for all clinical psychiatric syndromes. Axis II is to be utilized for personality disorders and Axis III is to be utilized for physical disorders. Axis IV and Axis V relate to psychosocial stressors and highest level of functioning, respectively. As any number of clinical psychiatric syndromes can be recorded on Axis I, this system enabled researchers to begin to study psychiatric comorbidity in detail.

At the time of development of the DSM-III, the ICD-9 was being utilized in Europe. The developers of the DSM-III, however, made a decision not to utilize the ICD-9 for two reasons: (1) the ICD-9 classification system was not detailed enough for clinical and most important for research use; and (2) the ICD-9 had not utilized operational diagnostic criteria and the multiaxial approach to diagnosis. However, the developers of the DSM-III wished to maintain compatibility with the ICD-9 and its successor — the ICD-10. As such, DSM-III codes were made to be fully compatible with the codes and terms utilized in the tabular index of the ICD-9. Thus, most DSM-III diagnoses have compatible terms and codes in the ICD-9. For example, opioid withdrawal is coded as 292.00 in the DSM-III and 327.11 in the ICD-9.

Research with the DSM-III and its successor the DSM-III-R[4] has determined that the prevalence of comorbidities between psychiatric disorders in general and specifically between psychiatric disorders and psychoactive substance use disorders may be enormous. In a recent lifetime and 12-month United States prevalence study of DSM-III-R[4] psychiatric disorders, it was found that half of all lifetime disorders occurred in 14 per cent of the population.[5] In addition, this population had a history of three or more psychiatric comorbid disorders and the vast majority (79 per cent) of lifetime disorders were comorbid disorders.[5] The prevalence numbers for the second type of comorbidity, that between major psychiatric disorders and psychoactive substance use disorders may also be enormous. Here it has been reported that for those with any mental disorder, the lifetime prevalence for addictive disorders is about 29 per cent (22 per cent for alcohol, 15 per cent for other drugs).[6] In persons with any addictive disorder, comorbid mental disorders occur at greater than expected rates. For persons with alcohol abuse or dependence, 37 per cent will have a comorbid mental disorder. Among persons with psychoactive substance use disorders other than alcohol, 53 per cent will have a mental disorder at some time during their life.[6] Considering that the prevalence percentage estimate for lifetime dependence on psychoactive substances is estimated to be 5.3 per cent of the USA 28–54-year-old

populations,[7] the number of patients with a comorbid psychiatric disorder and psychoactive substance use disorders should, therefore be huge. Within the psychoactive substance use literature, patients with this type of comorbidity have been labelled 'dual diagnosis' patients.[6]

In reference to chronic pain patients (CPPs), a number of studies[8–10] have documented comorbidity between the presence of chronic pain and various psychiatric diagnoses as delineated by the DSM-III[11] system. In addition, these studies and a number of others have indicated that psychoactive substance use disorders may be quite common within CPPs. For example, in a recent review of this literature Fishbain *et al.*[12] have concluded that the prevalence percentages for the diagnoses of drug abuse, drug dependence, and drug addiction were in the range of 3.2–18.9 per cent. However, to our knowledge, the comorbidity between psychoactive substance use disorders and psychiatric disorders has not been previously investigated within CPPs. The purpose of this study was, therefore, to determine if this type of comorbidity is present within CPPs and whether the nature of this comorbidity is the same as previously described within other psychoactive substance use disorder populations.

methods

Because of the recent interest in comorbidity between psychiatric disorders and psychoactive substance use disorders, we re-analyzed data from a previously reported study.[10] In this study we had systematically evaluated 283 consecutive chronic pain patients (CPPs) admitted to our pain facility. These CPPs had the following general characteristics: (1) pain duration longer than 2 years; (2) poor response to conventional treatment (e.g. surgery) for their pain; and (3) financial ability (e.g. third-party, self-pay) to pay medical costs of the program. No patients were eliminated from evaluation for psychiatric reasons. In this group of CPPs, the primary location of pain was distributed as follows: low back 73.1 per cent; cervical (neck) 17.0 per cent; other (abdominal, chest, etc.) 7.9 per cent; and headache 1.8 per cent. The headache category consisted of only those individuals who reported head pain whose etiology was not related to cervical bony or muscular pathology. Many, if not most, of the patients comprising the cervical pain group also reported headaches. As such, the representation of headache patients in our overall subject sample was considerably higher than 1.8 per cent. Myofascial pain syndrome compromised the most frequent primary treatment diagnosis (85 per cent). For details of how organic diagnoses were arrived at, please refer to the original study.[10]

Each patient was also subjected to a detailed, semi-structured psychiatric interview based on DSM-III flowsheets.[11] Additionally, the patient's past history, personal history and family history were obtained, followed by a standard mental status examination. The psychiatric interview was done by a senior psychiatrist. All DSM-III diagnostic guidelines were strictly followed.

As outlined by Drake and Vaillant,[13] because of the difficulty in marking a diagnosis of personality disorder, a careful history of social and occupational functioning over time was taken in addition to a history of symptoms and behaviors. If a patient did not fulfill DSM-III criteria for a diagnosis on Axis II (personality disorder), he/she was assigned a personality type diagnosis according to the categories described by Kahana and Bibring.[14] All diagnoses were assigned independently of any knowledge of psychological test data. The assigned DSM-III diagnoses were then coded on a standardized instrument specifically developed for this study.

For the statistical analysis, the 283 CPPs were segregated into the following groups: (A) CPPs with a *current* psychoactive substance use disorder (opioids, barbiturates, sedatives, cannabinoids, stimulants) (Group #1); (B) CPPs with a *current* alcohol problem (Group #2); (C) and CPPs with a current drug problem plus those with a current alcohol problem (combined) (Group #3). Each group was compared by χ^2 analysis to the *rest* of the CPPs for the frequency of each DSM-III diagnosis. In addition, CPPs with a current alcohol problem (Group #2) were statistically compared by χ^2 to the remaining CPPs for the following: presence of a personality disorder diagnosis; total number of DSM-III-R Axis I diagnoses (other than drug and alcohol); and mean number of Axis I diagnoses.

results

There were 24 CPPs in Group I (current drug problem), 12 in Group II (current alcohol problem), and 32 in Group III (current drug or alcohol problem, combined group). Four patients had both current drug and alcohol problems. χ^2 comparisons of each of these groups to CPPs without these diagnoses for the prevalence of associated DSM-III[11] diagnoses are presented in Tables I, II and III. Only diagnoses that were statistically significantly different between the two groups are presented in each table.

The following DSM-III diagnoses were found to be more frequently associated with the current drug problem versus the remaining CPPs (Table I): major depression recurrent without melancholia, dysthymia, total current depression (major depression any type, dysthymia, adjustment disorder with depressed mood), intermittent explosive disorder and borderline personality disorder. Compulsive personality style was more frequently associated with the remaining CPPs.

The following DSM-III[11] diagnoses were found to be more frequently associated with the current alcohol problem (Group II) versus the remaining CPPs (Table II): major depression single episode without melancholia, total

Table I.
Comparisons of CPPs with a current drug problem to those without for the prevalence of associated DSM-III diagnoses

	Number of CPPs with this diagnosis	% of CPPs with a current drug problem with this diagnosis ($n = 24$)	% of CPPs without a current drug problem with this diagnosis ($n = 259$)	χ^2 and P value
DSM-III affective disorders				
Major depression, recurrent without melancholia	7	42.9	7.6	8.86, $P < 0.01$
Dysthymia	66	15.2	6.5	3.88, $P < 0.05$
Total current depression (major depression, dysthymia, adjustment disorder, depressed mood)	114	14.9	4.1	8.83, $P < 0.01$
DSM-III miscellaneous diagnosis				
Intermittent explosive disorder	28	17.9	2.7	10.71, $P < 0.01$
DSM-III personality disorders				
Borderline disorder	3	66.7	7.9	6.73, $P < 0.01$
Personality disorder	69	1.4	10.7	4.68, $P < 0.05$

Table II.
Comparisons of CPPs with a current alcohol problem to those without for the prevalence of associated DSM-III diagnosis

	Number of CPPs with this diagnosis	% of CPPs with a current alcohol problem with this diagnosis ($n = 12$)	% of CPPs without a current alcohol problem with this diagnosis	χ^2 and P value
DSM-III affective disorders				
Major depression single episode without melancholia	6	50.0	3.2	21.1, $P < 0.001$
Total current depression (major depression, dysthymia, adjustment disorder, depressed mood)	114	8.3	1.2	7.88, $P < 0.01$
DSM-III miscellaneous diagnosis				
Intermittent explosive disorder	28	17.9	2.7	10.71, $P < 0.01$
DSM-III personality disorders				
Paranoid disorder	3	25.0	3.5	4.27, $P < 0.05$

current depression, intermittent explosive disorder and paranoid personality disorder.

The following DSM-III (11) diagnoses were found to be more frequently associated with the current drug or alcohol problem (Group III) versus the remaining CPPs (Table III): major depression single episode without melancholia, major depression recurrent without melancholia, total current depression, intermittent explosive disorder, borderline personality disorder and dependent personality disorder. In addition CPPs with a current alcohol problem (Group II) were more likely to have a DSM-III[11] Axis II personality disorder diagnosis ($\chi^2 = 7.86$, $P < 0.001$) and had a greater mean number of Axis I diagnoses ($T = 5.65$, $P < 0.001$).

discussion

The results of this study indicate that within this CPP population those CPPs with a current psychoactive substance use disorder demonstrate significantly more psychiatric comorbidity than their CPP counterparts. This is then much like that described above for non-CPPs. In addition, the types of psychiatric comorbidities demonstrated by the psychoactive substance use disorder subgroups (drug, alcohol, combined) appears to be very similar. All groups demonstrated affective disorder, personality disorder and impulse control disorder comorbidities. These different types of psychiatric comorbidities and their relationship to previous research will be discussed below.

With regard to affective disorders, our results indicated that the CPP drug, alcohol and drug-alcohol combined groups had a significantly greater frequency than their counter-parts for the following DSM-III[11] diagnoses: major depression recurrent (drug and combined groups), major depression single episode (alcohol and combined groups), dysthymia (drug group), and total depression (alcohol, drug, combined groups). These results are compatible with previous studies on the comorbidity between psychoactive substance use disorders and affective disorders in non-CPPs. Studies of psychiatric comorbidity in opioid abusers previously found that about 80 per cent of patients

Table III.
Comparisons of CPPs with a current drug or alcohol problem combined, to those without, for the prevalence of associated DSM-III diagnoses

	Number of CPPs with this diagnosis	% of CPPs with a current alcohol and/or drug problem with this diagnosis ($n = 32$)	% of CPPs without a current alcohol and/or drug problem with this diagnosis	χ^2 and P value
DSM-III affective disorders				
Major depression single episode without melancholia	6	66.7	10.1	13.52, $P < 0.001$
Major depression recurrent without melancholia	7	42.9	10.5	4.26, $P < 0.05$
Total current depression (major depression, dysthymia, adjustment disorder, depressed mood)	114	20.2	5.3	13.52, $P < 0.01$
DSM-III anxiety disorders				
Adjustment disorder with anxious mood	121	5.8	15.4	5.50, $P < 0.05$
DSM-III miscellaneous diagnoses				
Intermittent explosive disorder	28	32.1	9.0	11.24, $P < 0.001$
DSM-III personality disorders				
Dependent	49	20.4	9.4	3.86, $P < 0.05$
Borderline disorder	3	66.7	10.7	4.53, $P < 0.05$
Personality styles				
Compulsive	69	1.4	14.5	7.59, $P < 0.01$

met criteria for at least one non-substance use psychiatric disorder with rates of affective disorder and personality disorder far exceeding general population estimates.[15] In addition, depending on the type of instrument used, the incidence of depression in psychoactive substance use patients has ranged from 6–70 per cent.[16] Also, of the affective disorders major depression appears to be one of the diagnoses most commonly present.[15,17] This was also noted in our study. Chronically depressed patients may turn to drugs for self medication. Thus, it is not surprising that a significant prevalence of dysthymia has been reported in non-CPP psychoactive substance use patients.[18] It is interesting that our CPP drug group demonstrated a statistically greater frequency of dysthymia versus their counterparts. Most studies of alcoholics report a high prevalence of comorbid current affective illness in the range of 9–38 per cent.[19] These observations are also supported by our results with the alcohol subgroup. Here it was found that major depression single episode without melancholia was significantly more likely to be present than in the CPP counterpart group.

Concerning personality disorders, our results indicate that the CPP drug, alcohol and drug–alcohol combined groups had a significantly greater frequency than their counterparts for the following DSM-III[11] diagnoses: borderline personality disorder (drug, combined groups), paranoid personality disorder (alcohol group), and dependent personality disorder (combined

group). These results are also compatible with previous studies on the comorbidity between psychoactive substance use disorders and personality disorders in non-CPPs. Koenigsberg *et al.*[20] reviewed over 2400 psychiatric patients and found that patients with a psychoactive substance use disorder were more likely than other psychiatric patients to have a comorbid personality disorder, i.e. 46 per cent of alcoholics and 61 per cent of non-alcoholic drug abusers had a comorbid personality disorder. In Koenigsberg's study,[20] the most frequent personality disorders among substance abusing patients were borderline (43 per cent), and antisocial (21 per cent). In another study,[21] within a psychiatric population, the most common comorbid personality disorders with psychoactive substance use disorders were reported to be borderline personality disorder and histrionic personality disorder. Within a psychoactive substance use population of cocaine abusers, the most common comorbid personality disorders were reported to be anti-social (21 per cent), borderline (18 per cent) and self-defeating (18 per cent).[22] In alcoholic patient groups the most frequent comorbid personality disorders have been reported to be anti-social personality disorder, borderline personality disorder and avoidant personality disorder.[23] It has been concluded from the above research that the strongest association between psychoactive substance use disorders and personality disorders is for Cluster B personality disorders which includes anti-social, borderline, narcissistic and histrionic.[23] Our results appear to be quite similar to the results of the above-reviewed studies. Borderline personality disorder was statistically more likely to be comorbidly present within the drug and combined groups versus their counterparts. However, the presence of paranoid and dependent personality disorders to our knowledge has not previously been reported. We have no explanation for this finding. Our results for the alcohol subgroup also indicate that this group was more likely to have any personality disorder diagnosis. As such, in general, our results for personality disorders are consistent with the non-CPP comorbidity literature.

DSM-III[11] defines intermittent explosive disorder as 'several discreet episodes of failure to resist aggressive impulses that result in serious assaultive acts of destruction of property'. For our CPP population we demonstrated that all three psychoactive substance use disorder subgroups (drug, alcohol, combined) were statistically more likely to have a comorbid intermittent explosive disorder than their counterparts. A comorbidity between psychoactive substance use disorders and intermittent explosive disorder to our knowledge has not previously been reported. However, comorbidity between this disorder and personality disorders is often seen. This last association may explain our results.

Many studies have indicated that in clinical populations seeking treatment for psychoactive substance use disorders there is frequent comorbidity with anxiety disorders.[24] Agoraphobia, panic disorder, and social phobia are particularly prevalent in this population.[24] Similarly, in alcoholic populations, there is a high prevalence of anxiety disorders compared to the general population,[25] some of which may be substance induced.[26] These studies indicate that we should have found comorbid anxiety disorders within our psychoactive substance use disorder subgroups. We have no explanation for this failure except that a need for pain programs to better identify anxiety syndromes has previously been stated.[10] Poor case identification of anxiety syndromes may be the problem.

What is the potential clinical importance of psychiatric comorbidity to CPPs? First, as discussed above, psychoactive substance use disorders are commonly found within CPPs.[12] Second, psychiatric comorbidity literature

now indicates that psychoactive substance use disorder patients are more difficult to treat and are more likely to be treatment failures if their comorbid psychiatric pathology is not recognized and treated.[27,28] This would indicate that CPPs with psychoactive substance use disorders should be carefully examined for the presence of other psychiatric disorders, as under treatment of these, would impact on treatment success of other disorders. Thirdly, this literature also indicates that substance use disorders can induce anxiety[26] and depressive symptoms[28] in psychoactive substance use patients and that the rate of remission of these symptoms is consistent with the primary diagnosis.[28] As such, some of these symptoms may simply remit with cessation of substance use, but other may not, especially if the underlying diagnosis has been missed and treatment has not been initiated. Therefore, it is mandatory in the case of these dual diagnosis patients to make the correct psychiatric diagnosis at the beginning of treatment and to initiate treatment immediately for that diagnosis if indicated. It is yet unclear if all of the above observations apply to CPPs.

What are the potential methodological problems with this study. As noted, this study was performed utilizing DSM-III nomenclature. Since then, the DSM-III has been supplanted by the DSM-IV.[29] As such, some of the above data may not be directly applicable to the DSM-IV. However, most of the discussed syndromes are similar between both editions although some of the criteria have changed. In addition, we believe that the use of the DSM-III does not deter from the main result of this study: the presence of psychiatric comorbidity in CPPs who utilize psychoactive drugs. Future studies may wish to replicated this study utilizing the DSM-IV.[29]

conclusions

This study has demonstrated that there is a greater prevalence of comorbid psychiatric pathology within CPPs with psychoactive substance use disorders than their counterparts. This pattern is much like that present in non-CPPs with psychoactive substance use disorders. As such, if a CPP is suspected or identified as having a psychoactive substance use disorder, he/she should be evaluated for comorbid psychiatric pathology. For the reasons discussed, the identified comorbidity should be treated aggressively.

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