

Comorbidity of alcohol dependence with other psychiatric disorders. Part I. Epidemiology of dual diagnosis

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Summary

The paper is a review of the literature on the comorbidity of alcohol dependence with other psychiatric disorders. A condition when alcohol dependence is accompanied by another mental disorder is much more common than it is commonly believed. It is estimated that more than one third of people diagnosed with mental disorders, abuses or is dependent on psychoactive substances, especially alcohol; among alcohol-dependent patients 37% suffer from other mental disorders. Alcohol dependence is associated with increased risk of mood disorders – more than three times higher, depression – almost four times higher, bipolar disorder – more than six times higher, anxiety disorders in general – more than twice, generalized anxiety disorder – more than four times higher, panic disorders – almost double, posttraumatic stress disorder – more than twice. Underestimating of comorbidity is an important problem during treatment of such population of patients. Social skills training can improve a stress management and decrease alcohol and drug use among dual diagnosed patients.

Key words: alcohol dependence, mental disorders, dual diagnosis, epidemiology

Introduction

The dual diagnosis is a condition, in which a patient with mental disorder has a coexisting problem of using psychoactive substances, including alcohol. Patients with dual diagnosis are always “difficult cases” for a physician or therapist. The condition where alcohol dependence is accompanied by another mental disorder is much more

prevalent than it is commonly believed, because patients asking for a psychiatric advice do not spontaneously reveal their problems related to drinking [1, 2]. Treatment of patients with dual diagnosis is more challenging; the significant deterioration in social functioning often occurs. These patients are more likely to suffer from medical disorders and have difficulties in family relationships. They fail to maintain stable financial situation and have conflicts with the law [3]. The rates of dual diagnosis in homeless individuals are about 10% to 20% [4].

A group of patients with dual diagnosis is extremely heterogeneous. The comorbidities are linked together and appear in diverse inter dependence at different stages:

- a primary psychiatric disorder may cause increased alcohol consumption and development of alcohol dependence;
- substance abuse or alcohol dependence may be a risk factor for another psychiatric disorder;
- alcohol consumption can be a way to “self-cure” the symptoms of a coexisting psychiatric disorder. This may lead to alcohol abuse and as a consequence – to alcohol dependence;
- alcohol withdrawal syndrome may precipitate other psychiatric conditions;
- substance dependence and other psychiatric disorders can develop independently.

According to the Polish State Agency for Solving Alcohol Problems in Poland 600,000 to 900,000 citizens meet criteria of alcohol dependence and more than 3,000,000 abuse alcohol [5]. The 2012 Polish epidemiological study (EZOP) found that 4.4% of males and 0.4% of females are alcohol dependent [6]. Poland, where 2.4% citizens are alcohol depended, and 11.8% abuse alcohol [6], is a country where alcohol consumption per year is on an average high level per capita. In the years 1993–2009 alcohol consumption rate grew up nearly by 50% [7]. According to the EZOP study 3.9% of interviewed subjects drank alcohol every day during the previous year [6]. Alcohol intoxication is found in 25% of suicide victims. 35% of drowning is linked with alcohol intoxication. These two factors are, among others, responsible for high mortality rate related to alcohol use, which is even higher among Polish citizens than in the rest of Europe by 40%. There is no hope that this situation will improve soon, because alcohol use among youth is increasing. Only 8% of Polish teenagers maintain abstinence, 15% is estimated to be endangered with alcohol-related problems. The age of alcohol initiation decreased to 11 during the recent years. The situation is worsened by the fact that over 80% of stores sell alcoholic beverages to minors under 18.

In this paper, both Polish and foreign papers concerning dual diagnosis were analyzed. Key words: dual diagnosis, alcohol, alcohol dependence, comorbid disorders were used in MEDLINE/PubMed databases to identify possible contributing articles. Papers published from 1991 to 2013 entered analysis. This is the first paper of the two

articles dedicated to problem of dual diagnosis. Second paper focuses on pathophysiology and treatment of dual diagnosis.

The epidemiology of comorbidity of alcohol dependence and psychiatric disorders

Among alcohol dependent patients, 37% suffer from other psychiatric conditions [3, 8]. ECA (Epidemiological Catchment Area) study was one of the first large projects about dual diagnosis in Europe. Results of ECA showed that alcohol dependence, anxiety disorders and affective disorders coexist commonly [9]. This coexistence was also found in NCS (National Comorbidity Survey) study [10]. In this survey more than 25% of individuals diagnosed with alcohol dependence met criteria of depressive episode in the previous year. The same study showed high comorbidity rate of anxiety disorders with alcohol dependence – 36.9% of subjects suffered from an anxiety disorder in last 12 months before study. This data proves how alcohol dependence increases the risk for mood and anxiety disorders. The authors found that alcohol dependence increases the incidence of depression most four-fold and anxiety disorders more than two-fold. Posttraumatic stress disorder was diagnose in patients with alcohol dependence more than twice frequently than in the general population. Similar but less severe correlation was found among individuals abusing alcohol but not meeting the criteria for alcohol dependence [10].

In the general population, 12.3% of alcohol abusers met the criteria of affective disorders, with majority (11.3%) with depressive disorder [9–11]. Individuals with coexisting bipolar disorder comprised 0.3% of the sample. A much larger proportion of coexisting psychiatric disorders was observed in patients with alcohol dependence. In the year preceding the survey almost 30% of alcohol addicts suffered from mood disorders, mostly depression (27.9%). In a study on co-occurrence of mental disorders with alcohol dependence, Shivani and Anthenelli estimated that up to 80% experienced symptoms of affective disorders and 40% met criteria for depression in lifetime [12]. Individuals with bipolar disorder comprise 1.9% of alcohol-dependent population [13]. In the American population posttraumatic stress disorder (PTSD) coexists with alcohol dependence very frequently. The symptoms of PTSD during the 12 months before the study were found in 5.6% of alcohol abusers and in 7.7% of alcohol addicts. Generalized anxiety disorder and panic attacks were diagnosed in 1.4% and 1.3% of alcohol abusers, which was not statistically different from the general population. Much higher risk of developing these disorders was found in alcohol-dependent subjects – 11.6% of patients met the criteria of generalized anxiety disorder in the past 12 months, and 3.9% the criteria of panic disorder (table 1). Alcohol abuse in the past increases the risk of depressive episode four times – even when abstinence is maintained [14]. The risk is higher when subject developed alcohol dependence compared to alcohol abuse only. The association of depression with the history of alcohol dependence is stronger among women [15]. According to ECA schizophrenia was diagnosed more

frequently in alcohol abusing (9.7%) and in alcohol-dependent (24%) population than in the general population [9].

Table 1. **Prevalence of psychiatric disorders in alcohol abusers and alcohol-dependent individuals [10, 11]**

Disorder	Alcohol abuse		Alcohol dependence	
	12-months prevalence (%)	OR	12-months prevalence (%)	OR
Affective disorder in total	12.3	1.1	29.2	3.6
Depression	11.3	1.1	27.9	3.9
Bipolar disorder	0.3	0.7	1.9	6.3
Anxiety disorder in total	29.1	1.7	36.9	2.6
Generalized anxiety disorder	1.4	0.4	11.6	4.6
Panic disorder	1.3	0.5	3.9	1.7
Posttraumatic stress disorder	5.6	1.5	7.7	2.2

OR – odds ratio as compared to the general population

The results of these studies have inspired the authors of DSM-IV to create a category of mental disorders caused by alcohol use (“alcohol-induced disorders”), which has been kept in the fifth revision (DSM-5). It stands that anxiety disorders and depressive disorders in subjects with alcohol dependence are direct consequences of ethanol impact on the central nervous system. To determine secondary nature of these disorders, it was assumed that their symptoms should occur within four weeks after the last alcohol consumption or withdrawal syndrome. At the same time observed symptoms cannot be explained by the natural course of intoxication or withdrawal. Drinking was therefore named a risk factor for the development of depression. The risk of depression among alcohol-dependent subjects is 1.5–4 times higher than in individuals without evidence of addiction [16, 17], thus a significant proportion of individuals addicted to alcohol suffer from anxiety and depressive disorders [18, 19].

Alcohol dependence is associated with a higher incidence of following mental disorders [11, 13]:

- mood disorders in total – more than three times;
- depression – almost four times;
- bipolar disorders – more than six times;
- anxiety disorders in total – more than two times;
- generalized anxiety disorders – more than four times;
- panic disorders – more than two times;
- posttraumatic stress disorder – more than two times.

It was also determined whether the existence of mental disorders is associated with more frequent use of alcohol in an uncontrolled manner. It turned out that the criteria for alcohol dependence are met among:

- 30% of patients with personality disorder;
- 24% of patients with adaptation disorder;
- 22% of patients with depression;
- 18% of patients with anxiety disorder;
- 11% of patients with schizophrenia;
- 9% of patients with bipolar disorder [8].

In periods of mania as much as 60% of patients with bipolar disorder abuse alcohol or become addicted to alcohol or other psychoactive substances [20]. The differences in data on epidemiology come, among others, from different diagnostic criteria and diagnostic tools used by researchers. Also, lifetime or point prevalence were calculated in different studies. This is why direct comparison and synthetic summary of epidemiology is not always possible. Authors found reports written by Petrakis et al. [11] and Kessler and his research group from National Comorbidity Survey [10] as most detailed and reliable in epidemiology of dual diagnosis.

There are significant differences in the incidence of depressive disorders and alcohol dependence based on gender. This should be taken into consideration when analyzing the problem of their coexistence. Understanding of background of these differences may lead to new opportunities for individualized therapy and prevention. While the prevalence of depression is two times higher among women [21], the risk for alcohol dependence is even ten times higher in men [6, 22]. In women, in which affective or anxiety disorders emerge as a result of severe stress, the risk of developing alcohol dependence is greater and addiction develops in a shorter time than among those without depressive or anxiety disorder [2, 10, 23]. In this group of individuals the sensitivity of the central nervous system to neurotoxic effects of alcohol was also increased compared to men [24]. A possible explanation of this phenomenon appears to be a dysfunction of the structures of the stress system.

The onset of depression in women is earlier than in men [24]. The risk for post-traumatic stress disorder is higher in women [25, 26]; PTSD in women, in a higher proportion than in men, precedes the onset of alcohol dependence [27]. In men with a diagnosis of depressive disorders alcohol dependence is observed more frequently than among women [24, 27].

As described above, alcohol dependence often coexists with various groups of mental disorders. It is difficult to directly extrapolate the results of individual studies on the general population, but the above-mentioned data gives a clear picture of the large-scale comorbidity. An important methodological limitation of such studies is inability to precisely determine, which of the observed symptoms/disorders appeared first. From a therapeutic point of view this is obviously of some importance, but all

the standards implicate the simultaneous treatment of both alcohol dependence and comorbid psychiatric disorders. If possible, it should be diagnosed, which of the problems appeared first. This gives a chance in time to prevent recurrence or reduce the severity of symptoms, referred as secondary. Important tool is a family history of alcohol dependence and other psychiatric disorders, which may suggest the initial diagnosis in a particular case [1, 16]. Prompt treatment of a primary disorder can give patients a chance to suffer less or even prevent development of secondary disorders.

The several studies show that certain mental disorders among predisposed individuals promote the development of addiction [2, 10, 23]. These include: dissocial, borderline and schizotypal personality disorder, bipolar disorder, anxiety disorder, social phobia, posttraumatic stress disorder, depression, schizophrenia [10, 23], and attention deficit hyperactivity disorder [28]. The researchers recommend that patients suffering from these disorders should be particularly examined regarding alcohol consumption. Adolescents are in risk as well as adult population. Polish study on over 2,000 teenagers showed that depressive symptoms are linked to greater alcohol consumption among both boys and girls [29]. The importance of prevention in this field has been sufficiently demonstrated. Alcohol significantly impedes effective treatment of all mental disorders; on the other hand, dual diagnosis undoubtedly limits the effectiveness of treatment for addiction. In one prospective study, during the two-year follow-up of patients with alcohol dependence, 41.9% patients without comorbid disorders remained abstinent comparing to only 28% of patients with dual diagnosis [8].

Suicidal behaviour among alcohol dependent patients

Risk of suicide among addicts is higher than in the general population [30]. According to some researchers, risk of suicide in alcohol-dependent subjects is even higher than in patients with depression [31]. The results of international research showed that individuals with alcohol dependence have risk of committing suicide 60 to 120 times higher than individuals without psychiatric disorder [32]. The risk for suicide among alcohol-dependent subjects varies from 7% to 18% [31, 33, 34]. There is data supporting the thesis that almost 25% is making at least one suicidal attempt across lifetime [35]. Among alcohol-dependent individuals who committed suicide, 45–70% met the criteria of major depressive episode before a suicide [36–39]. Substance and alcohol dependence coexisting with depression is a major risk factor for suicide [40]. There are results of studies showing that majority (even 82%) of people who committed suicide had symptoms of a psychiatric disorder, mostly depression and alcohol dependence [37].

The etiology of depressive disorders comorbid with alcohol dependence has also been studied. It was found that patients with “endogenous” depression had higher risk for suicide than individuals with depression secondary to alcohol abuse. The prevalence of suicidal attempts in the first group was 30%, while in the second – 24% [35]. Among

individuals diagnosed with depression accompanied by suicidal ideation, group with alcohol addiction reported more severe symptoms comparing to the group without a history of alcohol abuse [41].

Dual diagnosis and typology of alcohol dependent patients

In recent years, several proposals of classifications were made to create more homogeneous groups of addicted patients. The starting point were psychological factors-personality and psychopathology. What is worth noting, widely understood “dual diagnosis” has become a way to isolate an individual subtypes basis of addiction. Cloninger and Babor et al. described two subtypes of alcohol addicts [42, 43]. More precise, detailed and widely accepted is the typology created by Lesch (LAT – Lesch Alcoholism Typology) [44]. LAT takes into consideration coexisting psychiatric symptoms. LAT was helpful in attempts to categorize and systematize diagnoses among individuals with dual diagnosis.

Lesch distinguishes the following four groups of alcohol-dependent patients [44].

Type I – called the “allergy model” is characterized by high component of physical addiction. Alcohol consumption is the way to avoid or to mitigate alcohol withdrawal symptoms, which usually have severe course in this group of patients. It was also observed that LAT I patients had characteristic sequence of clinical history. They start with harmful drinking and continue through abuse into fully developed alcohol addiction.

Type II – consists of patients who use alcohol as self-medication for anxiety or to relieve psychical tension in stressing situations. This type is called sometimes the “anxiety model”. In this model alcohol is a way of problem solving and solution for conflicts. LAT II patients are frequently individuals with low self-esteem, dominated by life partners, having difficulties to articulate personal opinions to realize needs. Alcohol consumption makes them more open and offensive. Aggressive and auto aggressive behaviour is frequently met among LAT II patients.

Type III – comprises patients who use alcohol as an “antidepressive agent”. This category has high percentage of women and the highest representation of individuals with dual diagnosis – usually alcohol dependence comorbid with depression. This group uses alcohol as mood enhancer and to relieve sleep problems. Obviously, after short period of recovery, depression and anxiety relapse. As abuse of alcohol continues, depressive symptoms worsen, sleep disorders are less “treatable” with alcohol, and the quality of sleep is getting worse. This group consists high percentage of patients with aggressive and autodestructive behaviour, emotional lability, impulsivity and high risk for suicide. Patients from this group need separate treatment of affective disorders. Depending on comorbid diagnosis they should receive mood stabilizers or antidepressants.

Type IV – Lesch described CNS lesions appearing in childhood as a result of adverse impacts during development as crucial for the progress of addiction. Often excessive impulsivity and behavioural disorders are observed already in adolescence. Patients from this group show a lack of insight of alcohol dependence and also readily give in environmental pressure to use alcohol. Due to originally existing damage to the central nervous system, they are particularly susceptible to the toxic effects of alcohol on the brain and relatively often experience seizures. Baseline cognitive impairment during the development is quickly aggravated by alcohol. The percentage of men in this group of patients is greater than in the entire population of addicts.

LAT is giving a suggestion, which strategy of pharmacological treatment should be chosen for relapse prevention according to the randomized trials. Although, those strategies were not included into the treatment guidelines.

Recapitulation

As shown, there is no doubt that epidemiological relationship exists between anxiety, depression and alcohol use. Data from different countries, describing the epidemiological aspects of dual diagnosis remains consistent: a person addicted to alcohol suffers most commonly from mood disorders, anxiety disorders and posttraumatic stress disorder. It seems that the cycle of social skills training among patients with dual diagnosis helps to improve coping style, leading to reduction of psychoactive substances use [45].

As presented above, the coexistence of alcohol dependence and other mental disorders is relatively common phenomenon. That co-occurrence brings very important clinical implications that should be taken into consideration during the therapy. Contemporary researches on the field of dual diagnosis are focused on an explanation of its pathomechanisms. Pathophysiological and therapeutic aspects of alcohol dependence comorbidity with other psychiatric disorders are presented in the second part of the study.

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