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Case Report

UNDERGRADUATE STUDENTS' LEARNING CURVE IN FORMULATING DIFFERENTIAL DIAGNOSIS OF SUBSTANCE-INDUCED PSYCHOTIC DISORDER

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ABSTRACT

Two cases from undergraduate case studies were presented. The challenges in diagnosis were highlighted. Invariably, the differential diagnosis of substance-induced psychotic disorder is often misleading and instable over time. Therefore, a systematic framework using multidimensional grid was proposed. Finally, the differential diagnoses were discussed.

Keywords: *Substance-induced psychosis, differential diagnosis*

CASE 1

A 31-year-old gentleman with comorbid cannabis abuse for almost 12 years developed sudden onset of panic attack. The first attack occurred when he was chasing cannabis. Due to that episode, he abruptly stopped taking cannabis and complaint of persistent symptomatic illness, such as shortness of breath, palpitation and fear of dying. He is also burdening with personal problems that aggravate his condition. Mental status examination is normal except he has thought preoccupation with anticipatory fear of having another attack. The diagnosis of this case is challenging as it could be panic disorder with comorbid substance abuse, cannabis withdrawal or cannabis use disorder with panic attack. Urine for cannabis, subsequent to the last attack was negative. Biopsychosocial intervention has been implied on him including SSRIs, counseling, breathing and relaxation therapy.

CASE 2

A 44-year-old Malay rubber tapper first presented with mood symptoms 4 years before he was readmitted due to aggressive behavior toward his mother-in-law following the missing of his 5-year old son. Two days prior to admission, the patient acted aggressively by slapping his wife following a jealousy, that she is having an affair with another man. At the same time, he admitted of taking amphetamine. Mental status examination reveals signs of visual hallucination and paranoid (jealous) delusion. Urine drug screening is positive for methamphetamine. The issue at the earliest presentation is regarding the diagnosis of substance-induced psychosis since his urine taken was negative for methamphetamine. As the matter of fact, methamphetamine is washout from the body within 3-4 days; so negative finding does not mean no drugs were taken. Health care laboratory was not able to provide urine strips for drug detection at the earliest presentation. Patient on the other hand, denied any drug abuse and managed to convince the psychiatric team that he really had mental illness without the influence of substance. As another relapse of psychosis had flared up, he then admitted of methamphetamine abuse.

DISCUSSION

Differential diagnosis of substance-induced psychotic disorders could be misleading as the association of drugs and mental disorders could range from substance-induced psychosis, substance-induced mood disorder, substance induce-panic attack, substance withdrawal disorder to substance intoxication. To pinpoint the diagnostic difference between substance-induced psychosis and other psychotic symptoms, the history must clearly delineate time of reference when the patient start and stop taking substances, the duration and severity of substance addiction, type of drug involved and possibly identification of urine or blood markers that is clearly indicative of type of drug abuse.

Reluctance to reveal diagnosis, concealment of the previous diagnosis for cover-up purposes, deceivable act with regard to duration and time of last drug intake and even type of drug abuse, all could lead to misleading diagnosis. As a result, doctors would derive to disingenuous diagnosis, conclusion and management.

Mathias S *et al.* (2008) reviewed leading electronic data-bases (Medline, PubMed) searching for research studies, case reports and case series from 1992 - 2007. They identified 49 articles and presented data on populations diagnosed with substance-induced psychotic disorder.

They concluded after reviewing all those articles that there remains a striking paucity of information on the outcome, treatment, and best practice for substance-associated psychotic episodes [1].

As such, the most definitive method for making this distinction is longitudinal assessment after a period of sustained abstinence from psychoactive substances. It is time consuming and often impractical given the relapsing nature of substance abuse and psychosis.

Bruce J. Rounsaville (2007) suggested more rapid diagnosis could be facilitated by the identification of "markers" or distinctive clinical features that would identify patients with psychotic symptoms as having transient, substance-induced syndromes or enduring independent disorders [2].

Such markers might take the form of biological indices (eg, a genetic profile suggesting schizophrenia), symptom profiles, or features of the psychiatric history.

Secondly, more definitive information could be gathered on the duration of substance-induced psychotic symptoms and syndromes. At present, for purposes of differential diagnosis, "sustained" remission is considered to be around 4 weeks of abstinence. Conceivably, this duration of abstinence may be too short for psychoses induced by some substances (eg, cannabis or hallucinogens) or too long for those induced by others (eg. benzodiazepines) [2].

Stability of diagnosis over time is related to the ability to discriminate between substance-induced psychosis with schizophrenia. More often than not, the diagnosis changes over time based on finding at longitudinal follow-up.

Carol L.M. Caton *et al.* (2007) conducted a 1-year follow-up study of 319 psychiatric emergency department admissions with diagnoses of early-phase psychosis and substance use comorbidity. They observed a change in diagnostic category from substance-induced psychosis at baseline to primary psychotic disorder at the 1-year follow-up in 34 study participants, representing about 25% of those diagnosed with substance-induced psychosis at baseline. These patients had poorer premorbid functioning, less insight into psychosis and greater family history of mental illness than patients with a stable diagnosis of substance-induced psychosis [3].

Richard N. Rosenthal & Christian R. Miner (1997) has discriminated between drug-induced psychosis and schizophrenia. They found that formal thought disorder and bizarre delusions significantly predict a diagnosis of schizophrenia, with odds ratios (OR) of 3.55:1 and 6.09:1, respectively. Their study also showed that suicidal ideation (OR = 032:1), intravenous cocaine abuse (0.18:1), and a history of drug detoxification (0.26:1) or methadone maintenance (0.18:1) demonstrate inverse relationships with a schizophrenia diagnosis [4].

For undergraduate students, possibility of other factors that could influence their diagnostic precision includes language difficulties, cultural differences, the presence of Axis II disorders and patients' cognitive impairment.

Teaching students making psychiatric differential diagnosis involves many facets or dimensions, taking into account the misleading and instability of diagnosis.

I am suggesting that a systematic framework should be developed to derive to a differential diagnosis using multidimensional grid, x-axis being longitudinal history, y-axis severity dimension of symptom profile and z-axis on co-morbidity (Figure 1).

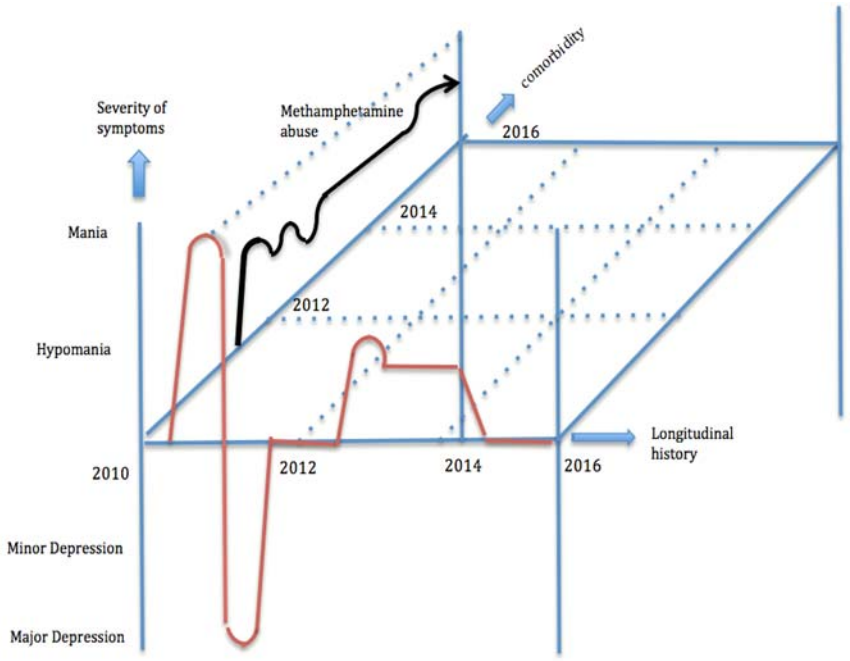

Figure 1: Framework for a differential diagnosis

Multidimensional grid provides 3D visualization on cause and effect of drug abuse (y=effect, z=cause). Symptom formation synchronizes with drug intake behavior strongly suggestive of correlation in some cases. Delay development is not uncommon in cases of low dosage intake and infrequent abuse.

In case of overlapping symptoms, development of symptoms after heavy use and prolonged abuse of substances vs. recent termination the drug intake, reoccurrence of symptoms after reintroduction of drugs, could suggest drug related differential diagnosis.

Understanding of event that could lead to abuse symptom formation may justify the inclusion or exclusion of adjustment disorder.

Rarely, Posttraumatic stress disorder (PTSD) comes to the forefront of differential diagnosis except when the prominent autonomic symptoms, re-experiencing and avoidance colour most of the presentation. Nevertheless, PTSD, by virtue, is a culture-specific diagnosis. As such, abusers with horrible experience of abuse and trauma inflicted by co-abusers or enforcement agency officials might not spare the diagnosis.

Dissociative disorders are not uncommon in view of the symptoms of appear memory loss of certain time periods, events and people as well as the sign of being detached from oneself and distorted perception.

In the Eastern culture, drug-induced mental disorders are often mask by counterfeit explanation of either possession by spiritual beings or imprisonment by an enemy executed through physical mean or through other medium.

CONCLUSION

In conclusion, a systematic framework using multidimensional grid should be utilized as teaching method for making a differential diagnosis for undergraduate students in psychiatry.

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