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Substance Abuse and Psychosis

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Abstract

This commentary deals with our publication from 12.2024, entitled "Early Detection and Treatment Options for Psychosis in Transition from Childhood to Adolescence: A Review About Three Decades of Psychiatric Clinical Experience" [1].

The article delves into the complex relationship between substance abuse and psychosis, focusing on the critical role of early detection, family involvement, and continuous monitoring in managing psychosis, particularly during the transition from childhood to adolescence. It highlights the impact of substance abuse on the onset and progression of psychosis, the importance of tools like OPATUS CPTA in diagnosis and treatment, and the challenges faced during the transition from child to adult psychiatry. We discuss findings from various studies on cannabis-related disorders and the genetic heritability of schizophrenia, emphasizing the need for comprehensive strategies to address these issues.

In this commentary, we include a case report from 2022 [2], showing the importance of differential diagnosis between drug-related and non-drug-related psychosis and add a new Canadian study, published in 2025 with new data on how incidence rates for psychosis have gone up after legalization of cannabis.

Keywords: Substance Abuse, Psychosis, Transition, OPATUS CPTA, Objective measurement of cognitive decline

Introduction

Psychosis is a severe mental disorder characterized by a disconnection from reality, often manifesting as hallucinations, delusions, and impaired cognitive functions. The transition from childhood to adolescence is a critical period for the onset of psychosis, making early detection and intervention crucial. Substance abuse, particularly the misuse of hallucinogenic substances, plays a significant role in the development and exacerbation of psychosis. This commentary explores the intricate relationship between substance abuse and psychosis, emphasizing the importance of early detection, family involvement, and continuous monitoring in managing the disorder.

Overview Substance Abuse and Psychosis

Substance abuse plays a significant role in the development of psychosis. The misuse of drugs, particularly hallucinogenic substances such as cannabis, LSD, ecstasy, and others, can trigger the first onset of a psychotic episode or negatively impact the further development and prognosis of treatment.

The susceptibility to drug-induced psychosis depends on genetic factors and the quality and dosage of the drugs consumed. In some cases, a single use of hallucinogens may be sufficient to start a psychotic episode.

Therefore, a valid differential diagnosis is essential to differ between schizophrenia and drug related psychosis, which will be highlighted in the following case report.

Differential Diagnosis (Case Report by Shaikh RI *et al.* [2])

The parents take their 17-year-old son to the emergency room and state that he has been suffering from hallucinations, delusions, and paranoia for over 6 months and is "constantly agitated." He himself says he feels persecuted by Martians and suspects his younger sister of stealing from him.

His medical history includes an acute depressive episode 3 years ago. Family history is positive for bipolar disorder from the paternal grandmother. The medical history of both parents is unremarkable.

The boy stated, that he did not consume alcohol or hallucinogenic substances. According to his mother, he had smoked about a pack of cigarettes a week for the past year. The parents added that he had consumed approximately 1 g of marijuana 7 months previously.

All clinical examinations were without results. The negative urine drug tests ruled out drug-induced psychosis. Although the patient had smoked marijuana prior to the onset of his symptoms, it was likely that he had only used it once, lately. Therefore, apart from tobacco consumption, there was no evidence of chronic substance abuse. The patient's psychomotor restlessness and delusions were therefore not related to addictive behavior.

Further diagnostic differentiation also included a detailed analysis of the patient's psychotic plus symptoms. Since the delusions were predominantly psychotic and not pompous or megalomaniacal, they were not manic symptoms and therefore not bipolar I disorder. Additionally, the lack of a history of poor sleep or extremely high energy helped steered the diagnosis toward a psychotic disorder.

Acute schizophreniform psychotic disorder was ruled out primarily because of the length of time over which the patient exhibited symptoms. Symptoms of schizophreniform psychotic disorder are similar to schizophrenia but last only 1 to 6 months. Although schizophreniform psychotic disorder increases the risk of later schizophrenia, it can also occur once.

After all other causes were ruled out, this patient was left with schizophrenia as the diagnosis.

We conclude, that an important part of the initial diagnosis should be, looking for cognitive impairments – memory related or perception related - which are listed below and to use instruments, that give precise measurements, as possible.

Common Cognitive impairments in the Prodromal Phase of Psychosis (adapted from Seidman *et al.* [3])

In the prodromal phase of psychosis, common cognitive impairments include:

Memory related

1. **Impaired working memory:** Difficulty in holding and manipulating information over short periods.
2. **Declarative memory deficits:** Problems with the ability to recall facts and events.
3. **Attention deficits:** Challenges in maintaining focus and concentration.

Perception related

4. **Thought interference:** Intrusive thoughts that disrupt normal thinking processes.
5. **Compulsive perseveration:** Repetitive and persistent thoughts or behaviors.
6. **Urging and chasing thoughts:** Rapid and uncontrollable flow of thoughts.
7. **Mind blocking:** Sudden interruptions in the flow of thoughts.
8. **Disorder of receptive language:** Difficulty in understanding spoken or written language.
9. **Disorder of discrimination:** Problems distinguishing between ideas, perceptions, and memories.
10. **derealization:** A sense of detachment from reality.
11. **Disorders of visual and Acoustic perception:** Visual and auditory distortions or hallucinations.

These cognitive impairments can serve as early warning signs and targets for intervention to mitigate the onset of full-blown psychosis.

The experienced clinician will look for perception related symptoms and register speech and language related symptoms but still needs a tool to measure memory related symptoms and especially tiny changes during a treatment period. This leads us to the role, the OPATUS CPTA can provide in the diagnostic and treatment control.

The Role of OPATUS CPTa in Diagnosing Psychosis and Measuring Progress Under Treatment [4]

The OPATUS CPTa provides objective measurements of cognitive functions such as concentration, activity, and impulsivity as part of diagnosing psychosis and in therapy controls:

1. Objective assessment: The OPATUS CPTa offers a standardized way to measure cognitive impairments, which are often early indicators of psychosis. It evaluates attention, reaction times, and error rates, providing quantifiable data.
2. Early detection: By identifying deficits in attention and impulsivity, the OPATUS CPTa helps in the early detection of psychosis, allowing for timely intervention.
3. Monitoring progress: The tool is used to track changes in cognitive performance over time, helping clinicians assess the effectiveness of treatments and make necessary adjustments.

4. Visual feedback: The graphical reports generated by the OPATUS CPTa make it easier for both clinicians and patients to understand the results, facilitating better communication and compliance with treatment plans.

5. Holistic diagnosis: It complements other neurological and psychiatric assessments, providing a comprehensive view of the patient's cognitive state.

Overall, the OPATUS CPTa enhances the accuracy and efficiency of diagnosing cognitive impairment, leading to better-informed treatment decisions and improved patient outcomes, as has been published for assessment on ADHD [5].

We will now discuss the progress from diagnosis to treatment options.

The Treatment Options for Psychosis in Adolescents Include

1. **Early detection and diagnosis**: Utilizing a holistic approach that includes neurological, psychiatric, and psychological assessments to identify early signs of psychosis.

2. **Medication**: Administering antipsychotic medications, particularly second-generation antipsychotics, to manage symptoms and prevent acute phases.

3. **Psychotherapy**: Cognitive-behavioral therapy (CBT) and other psychotherapeutic interventions to address cognitive and emotional symptoms.

4. **Family therapy**: Involving family members in the treatment process to provide support and education, which can help in early detection and management of symptoms.

5. **Substance abuse treatment**: Addressing any co-occurring substance abuse issues, as drug use can exacerbate psychotic symptoms.

6. **Educational support**: Providing support to help adolescents maintain their educational progress and manage any cognitive impairments.

7. **Systemic therapy**: Creating a support network involving family and peers to help prevent relapses and improve treatment outcomes.

8. **Use of tools like OPATUS CPTa**: Employing tools like the OPATUS CPTa for objective measurement of concentration and activity to monitor treatment progress and adjust interventions accordingly.

These treatment options aim to manage symptoms, improve cognitive function, and support the overall well-being of adolescents with psychosis.

Like mentioned under 7, inclusion of families and social networks will further improve the outcomes, especially in young adults, when family members are still available. First experiences we could gather in the 1980s, when we built up a new psychiatric hospital in Herten, Germany, and introduced family sessions and multi-family groups for psychotic patients.

Family therapy plays a crucial role in treating adolescent psychosis by

1. **Early detection**: Educating family members to recognize early signs and prodromal symptoms of psychosis, which can lead to earlier intervention and better outcomes.

2. **Support system**: Providing a strong support network for the adolescent, which can help in managing symptoms and reducing the risk of relapse.

3. **Education**: Informing family members about the nature of psychosis, treatment options, and the importance of medication adherence and avoiding substance abuse.

4. **Communication**: Improving communication within the family, which can reduce stress and conflict, creating a more supportive environment for the adolescent.

5. **Involvement in treatment**: Engaging family members in the treatment process, which can enhance the adolescent's compliance with treatment plans and improve overall effectiveness.

6. **Preventing relapse**: Helping families develop strategies to support the adolescent in maintaining treatment gains and preventing relapses.

Overall, family therapy helps create a cohesive and informed support system that is essential for the effective management and treatment of adolescent psychosis.

What situations are we actually facing? To show how urgent improvements are in diagnosis and care for psychosis, especially drug-induced or drug-increased, will be in the near future, we refer to some studies, that show the situation in Canada and UK.

Canadian Studies on Cannabis-Related Disorders [6,7]

The key findings from the 2016 Canadian study by Malony-Hall *et al.* [6]. on cannabis-related disorders, are an increase in Hospitalizations: Between 2006 and 2015, the rate of hospitalizations for cannabis-related mental or behavioral disorders in Canada rose significantly from 2.11 to 5.18 per 100,000. And the authors constitute, that the introduction of high-potency cannabinoid products and synthetic cannabinoids into the illicit market are considered possible factors contributing to the increase in hospitalizations.

In a recent publication from 2.2025 by Myran *et al.* [7]. about cannabis use disorder (CUD) the authors describe, that in their cohort study of individuals aged 14 to 65 years in Ontario, Canada, the proportion of incident cases of schizophrenia associated with CUD almost tripled during a period of substantial liberalization of cannabis policy. And this differs from the figures associated with schizophrenia.

British data, published by Davis *et al.* in 2016 [8]. indicate, that regular cannabis use increases the risk of developing psychosis by five times. Therefore, as cannabis use rises in the population, we will see more cases of psychosis. The typical age of onset for psychosis is around 21 years, but it occurs significantly earlier in cases related to cannabis use, when the young brain is still developing as well as vulnerable.

These findings underscore the growing public health challenge posed by cannabinoid use and the importance of addressing this issue through medical and public health interventions.

How Does Substance Use Impact the Development of Psychosis?

Substance use may trigger the first psychotic episode, especially in individuals with a genetic predisposition to psychosis as mentioned by Hilker *et al.* in 2017 [9].

It can aggravate existing psychotic symptoms, making them more severe and harder to treat.

It may make a negative impact on prognosis for treatment outcomes. Patients who continue to use drugs often have poorer outcomes compared to those who abstain from substance use.

Substance use increases the risk of relapse in individuals who have already experienced psychosis.

Substance use can contribute to cognitive decline, which is a significant concern in the management of psychosis This decline can affect attention, memory, and other cognitive functions, complicating treatment and recovery.

Overall, substance use is a critical factor in the development, exacerbation, and management of psychosis, highlighting the importance of addressing substance abuse in psychiatric treatment plans.

How Does Genetic Heritability Influence Schizophrenia Risk?

Genetic heritability plays a significant role in influencing the risk of developing schizophrenia.

The comprehensive study by Hilker *et al.* in 2017 [9]. involving twins estimated that up to 79% of the risk for schizophrenia can be explained by genetic factors.

This high heritability suggests that individuals with a family history of schizophrenia are at a much higher risk of developing the disorder themselves.

Key points on genetic heritability and schizophrenia risk include:

1. **High heritability**: The study indicates that genetic factors account for approximately 79% of the risk for schizophrenia, making it one of the most heritable psychiatric disorders.

2. **Family history**: Individuals with close relatives who have schizophrenia are at a significantly increased risk of developing the disorder compared to those without such a family history.

3. **Genetic predisposition**: The presence of certain genetic markers or mutations can predispose individuals to schizophrenia, even if they have not yet developed the disorder.

4. **Interaction with environmental factors**: While genetic heritability is a major factor, environmental influences such as drug use, stress, and prenatal factors can interact with genetic predispositions to trigger the onset of schizophrenia.

Understanding the genetic basis of schizophrenia can help in early detection and intervention, potentially mitigating the severity of the disorder through targeted treatments and preventive measures.

As Child and Youth Psychiatrist with experience in adult psychiatry, we emphasize, that the transition to adult psychiatry is essential for prognosis and should be organized accordingly.

What are the Challenges in Transitioning from Child to Adult Psychiatry?

The transition from child to adult psychiatry presents several challenges:

1. **Continuity of care**: Ensuring a seamless transition between child/adolescent and adult psychiatric services can be difficult. Differences in treatment approaches and philosophies between the two can disrupt continuity of care.

2. **Age overlap**: In Germany, child/adolescent psychiatry (CYP) can treat patients up to age 21, while adult psychiatry starts at age 18. This overlap can create confusion about which service should take responsibility for the patient.

3. **Different treatment approaches**: Child and adolescent psychiatry often involve family therapy and a more

holistic approach, while adult psychiatry may focus more on individual treatment. This shift can be challenging for patients and their families.

4. **Compliance and engagement**: Adolescents transitioning to adult services may struggle with compliance and engagement, particularly if they are resistant to the more autonomous nature of adult psychiatric care.

5. **Substance abuse**: We highlight that substance abuse is a significant issue in this transition period. Adolescents may continue or start using substances, complicating their psychiatric treatment and increasing the risk of relapse.

6. **Support systems**: The support systems available in child/adolescent psychiatry, such as family involvement, may not be as robust in adult services, potentially leading to a feeling of isolation for the patient.

7. **Educational and vocational challenges**: Adolescents are often in critical stages of their education or starting their careers.

Managing psychiatric conditions during this period can be particularly challenging and may require specialized support that bridges both educational and psychiatric needs.

Addressing these challenges requires coordinated efforts between child and adult psychiatric services, comprehensive transition planning, and ongoing support to ensure that young adults receive the care they need during this critical period.

In our experience, not all CY Psychiatrists have profound experience with large numbers of patients with psychosis, so the early signs may be overlooked.

How Does Early Detection Impact Psychosis Treatment Outcomes?

Early detection significantly impacts psychosis treatment outcomes in several positive ways:

1. **Prevention of full-blown psychosis**: Identifying and treating symptoms in the prodromal phase can prevent the development of full-blown psychosis, reducing the severity and duration of the disorder.

2. **Better prognosis**: Early intervention is associated with better long-term outcomes, including improved cognitive function, reduced symptom severity, and higher chances of recovery.

3. **Reduced hospitalization**: Early treatment can decrease the need for hospitalization and reduce the duration of hospital stays, leading to less disruption in the patient's life.

4. **Improved quality of life**: Patients who receive early treatment often experience a better quality of life, as they can maintain their social, educational, and occupational activities more effectively.

5. **Lower relapse rates**: Early detection and treatment can lead to lower relapse rates, as patients are more likely to adhere to their treatment plans and avoid triggers.

6. **Family involvement**: Early detection often involves family members, which can provide a stronger support system and improve treatment adherence and outcomes.

7. **Cost-effectiveness**: Early intervention can be more cost-effective in the long run, as it reduces the need for more intensive and prolonged treatments later on.

In summary, early detection of psychosis leads to more effective and less intensive treatment, better long-term outcomes, and an overall improved quality of life for patients.

In an early study in 1984 we showed that even GPs ambulant treatment could have a rate of 50% positive outcome [10].

Conclusion

The commentary underscores the importance of early detection, family support, and continuous monitoring. Part of it should be objective measurement of cognitive impairment, as it helps not only with diagnosis but shows how well and stable a remission is, using regular psychiatric evaluations and continuing objective measurements is essential for improving the prognosis of psychosis and will overall minimize costs for intensive and prolonged treatments.

Addressing substance abuse and ensuring a seamless transition from child to adult psychiatry are critical for effective management and better long-term outcomes. We propose that in CYP as in AP the screening abilities should be profoundly implemented and that family work and network related initiatives should be used in adult psychiatry as it is standard in CYP.

This will be essential for future management of rising numbers of affected, as the cited studies have shown.

Conflict of Interest

None.

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