Educating Medical Students on Adolescent Schizotypal Personality Disorders

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Personality disorders are particularly subtle and complex, and often present a challenge in medical student education. On one hand, there are critical differentials to consider when determining primary versus secondary diagnoses, and individual personality traits may greatly alter treatment approaches of various major psychiatric disorders.[1] On the other hand, educators are constantly faced with the risk of students resting on the laurels of overgeneralization, approaching every patient on the disorder spectrum as an extreme personality type.[2]

Utilization of Case Vignettes

One of the most common methods of educating clerkship students is through the use of case vignettes.[3] Vignettes provide students with a sense of immediacy and urgency—that these real-life examples represent patients they will soon encounter and should understand in order to provide appropriate care. Case vignettes may also help emphasize the importance of deciphering symptoms through a global, birds-eye view, as real-life patients almost never present according to the textbook definitions. This allows students a chance to utilize their critical analytical skills to reach an assessment, hence practicing the real art of medicine beyond the strict memorization of diagnostic criteria. Here, we present a vignette of an adolescent with schizotypal personality disorder (SPD), in hopes that readers will reflect on the case description as the specifics of the disorder are explored.

Case Vignette

Jenny (whose name and identifying information have been altered to preserve anonymity) is a fourteen-year-old girl with a history of depression and anxiety who was admitted to the adolescent inpatient psychiatric unit due to suicidal ideation with the plan to smash a lightbulb against her head, and homicidal ideation without specific targets. Parents described Jenny as a happy child with a vivid imagination and fantastical thinking, at times believing she was a dragon with scales on her body, but who became "moody" with the onset of puberty. The family moved from an overseas military base back to the United States a year prior to admission, and four months prior to admission, Jenny began expressing feelings of depressed mood with self-harm ideations after being teased by boys in her class. Since then she has been repeatedly hospitalized and sees a therapist regularly, and has been given trials of fluoxetine and risperidone. During the past four months, Jenny also frequently endorsed preoccupations with cannibalism in addition to suicidal ideations. Other self-reports include abilities of telepathy, superhuman vision, being able to "erase" people with the help of her group of telepathic "teammates," participation in homicidal acts on random targets, as well as feeling different than same-age peers, stating "nobody understands me." While recognizing the odd nature of her beliefs, Jenny appeared undisturbed by them. On admission, she stated that "[I] deserve to die," that "my family is better off without me," and that "I cause all the problems." Parental and self-reported social history also suggests a young girl without close and enduring relationships. In addition, family is undergoing the stress of a newly diagnosed terminal illness among one of Jenny's caretakers (her father). Jenny has requested voluntary hospitalization during past episodes of suicidal ideation. During her interactions with inpatient staff, she appeared coherent and euthymic, though somewhat withdrawn, with occasional inappropriate affect while discussing her bizarre preoccupations.

Definition

Personality may be described as the combination of emotional knowledge gathered through life experiences, or the ability of an individual to regulate cognition and hence behaviors in response to environmental inputs. Certain basic emotions, such as interest, are present at birth, while others develop gradually within the first two years of life. Personality disorders may then be thought of as an impairment of these basic regulatory systems that leads to individual dysfunctions within society.[4] In recent years, the idea of early life prodromal symptoms leading to adulthood personality disorder diagnoses has led to increased attention to adolescent personality disorders. It is well known that, in regards to childhood behavioral problems, the classification typically involves internalizing or externalizing reactivity of the child. Thus, it is believed that the appearance of adolescent personality disorders is the result of these early experiential interpretations, in combination with other biopsychosocial risk factors, leading to habitual emotional responses. Specifically, schizotypal personality disorder (SPD) is a unique disorder that may be argued as an endophenotype within the spectrum of psychotic disorders.[5] In fact, the *DSM-5* categorizes it within the schizophrenia spectrum disorders, and includes a specifier diagnosis of "SPD premorbid" for patients that present with a history of SPD prior to a diagnosis of schizophrenia.[4] Some researchers also believe SPD to be the manifestation of genetic vulnerability with potential progression to schizophrenia, hence the prodrome of schizophrenia. The lifetime prevalence of SPD is estimated as 3.9%, with male predominance.[6]

Risk Factors and Predictors

Biological Factors

Evidence suggests significant similarities between the biological characteristics of schizophrenia and SPD. For example, similar phenomenological impairments in eye tracking can be seen in both patients with schizophrenia and SPD.[7] In addition, similar genetic polymorphisms, such as that in the gene encoding dopamine 2 receptor, are found in both populations.[8] Interestingly, SPD is also found at higher rates in family members of patients with schizophrenia, suggesting a common genetic susceptibility. Indeed, in one study, the heritability of SPD was estimated to be as high as 72%.[9] Beyond genetic risks, increasing evidence points to brain structural and functional abnormalities in patients with SPD. For example, recent magnetic resonance imaging data have found that reduced gray matter (GM) in the left middle temporal gyrus in males was associated with cognitive disorganization/impulsivity and unusual sensory perceptions/magical thinking (SPMT), while reduced GM in the caudate in females was associated with SPMT, and reduced GM in the left amygdala and hippocampus was associated with social anxiety/withdrawal.[20] In our vignette, the patient was found to have multiple family members with alcoholism and one cousin with bipolar disorder, indicating that the patient may have increased genetic susceptibility toward psychiatric disorders.

Psychological Factors

The genetic and brain anomalies in SPD largely contribute to negative symptoms such as apathy, while other evidence supports the correlation between a history of abuse and the presence of positive SPD symptoms. Trauma (e.g., physical, emotional, sexual abuse, and neglect) seems to increase the risk of developing SPD, and the patient's perception of these experiences influences the magnitude of their effects. One large meta-analysis identified the odds ratio for SPD as 1.62-5.84 with history of physical abuse, 1.35-6.70 with neglect, and 2.05-4.15 with sexual abuse.[10] In addition, one of the prominent theories of personality disorder development remains problematic parental attachment in early childhood. On this subject, SPD is associated with dismissing attachment, disorganized attachment, and high avoidance attachment. For our patient, Jenny, there was no evidence of trauma history. However, in examining her early childhood social history, Jenny's family relocated frequently due to government careers, and one might conjecture some emotional trauma due to the lack of stable peer relationships. In addition, Jenny's family relationships were stoic, rigid, and rulebound, rather than warm, engaging, and playful. Furthermore, the patient's recent negative interactions with peers seemed to have contributed to her mood lability.

Social Factors

The most commonly identified social risk factor for developing SPD symptoms is low socioeconomic status, specifically that of the patient's family of origin.[11] Other less common social factors associated with SPD include religiosity, with one recent study showing intrinsic religiosity (i.e., religion as an end in itself) to be associated with decreased risk of developing SPD, while religious experience and extrinsic religiosity (i.e., religion as a means to an end) increased schizotypy.[12] Recently, research examining the association between creativity and SPD also suggests the contribution of cultural factors in shaping the perception of SPD as a psychopathology or social norm (i.e., creativity), which, while not directly affecting the risk of SPD development, speaks to the role of culture in social support and acceptance.[13] In the present case, the patient grew up in a stable, middle-income family. However, she is experiencing the recent social stressor of her father's newly diagnosed, potentially terminal illness, something especially difficult for her since her father has been the stay-at-home caregiver while her mother is at work. In addition, Jenny appears to have been socially ostracized and rejected by her peers both in the past and during the current geographic relocation.

Diagnosis

Differential Diagnoses

Differential diagnoses of SPD include, but are not limited to, schizophrenia spectrum disorders (i.e., schizophrenia, schizoaffective, schizophreniform, and schizoid personality disorders), anxiety and trauma disorders, bipolar disorder and other mood disorders with psychotic features, and other personality disorders, especially avoidant, paranoid, and borderline personality disorders. In assessing our patient, Jenny, we confirmed that the odd beliefs were not associated with other symptoms of mania, and that she had no overt disorganized thought content or negative affect suggestive of psychosis. Jenny did meet criteria for major depressive disorder, as well as generalized anxiety disorder, in addition to the suspected SPD, which can be comorbid in patients with SPD.

DSM-5 and *ICD-10* Definitions

According to *DSM-5* criteria, diagnosis of SPD requires significant impairments in personality functioning manifested by impaired self-functioning and interpersonal functioning, as well as pathological personality traits manifested in psychoticism, detachment, and negative affect.[14] It is important to note that the *ICD-10* classifies SPD (named *schizotypal disorder)* as a clinical disorder rather than a personality disorder, describing it as symptoms that "resemble those seen in schizophrenia." However, the listed disturbances largely echo those in *DSM-5*.[15] In assessing Jenny, her symptoms were congruent with the diagnosis of SPD according to both *DSM-5* and *ICD-10*.[14-16]

Personality Assessments

Various multidimensional constructs exist for modeling SPD, including two-factor (perceptual and interpersonal deficit), three-factor (with disorganization), four-factor (with impulsivity), and five-factor (with social anxiety and social anhedonia) models.[17] Irrespective of the model used, many well-validated personality measurement scales may help assess for symptoms of SPD in adolescent patients. Some of these are listed below. Each questionnaire is associated with unique strengths and weaknesses, and are easily accessible for use.[4,18-22] As a case sample, we administered the Rust Inventory for Jenny. She scored an 8 on the scale of 1-9 transformed from the raw score, approximately corresponding to the top 8.5% of the population in terms of tendency toward magical thinking and unusual perceptual/sensory experiences. This is interpreted as having a very high likelihood of having a diagnosis of SPD according to the Inventory. The following is a list of measures that can be used to explore personality and SPD:

- Coolidge Personality and Neuropsychosocial Inventory for Children
- Diagnostic Interview for Genetic Studies Modified Structured Interview for Schizotypy
- Dimensional Assessment of Personality Problems
- Dimensional Personality Symptom Item Pool
- Psychiatric and Schizotypal Inventory for Children

- Rust Inventory of Schizotypal Cognition
- Schedler Wester Assessment Procedure-200 for Adolescents
- Schizotypal Personality Questionnaire

Family, Social, and Developmental History

As mentioned in the previous section, the risk of SPD is multifactorial and includes genetic, psychological, and social variables. Thus, it is critical for students to perform a detailed psychiatric interview in order to identify the presence or absence of the aforementioned risk factors, which may act as collateral evidence in the final determination of the patient's disorder. In addition, while the various measurement tools may be able to identify core social and emotional traits at the time the patient completes the questionnaire, episodes of irrationality, poor social interactions, hypersensitivity, fantastical thinking, or detachment that occurred during early childhood may be best elucidated from family member accounts. In the case of our patient, Jenny, her teasing by peers may be an indicator of dysfunctional social interactions secondary to eccentricity, and warrant further investigation.

Treatment

Pharmacological Treatment

Due to the similarity in biological origins of schizophrenia and SPD, similar pharmacological treatments as those used for schizophrenia have been employed to manage the symptoms of SPD, namely antipsychotics. Specifically, atypical antipsychotics such as risperidone have been shown to be effective in reducing symptom severity in SPD.[23] However, there are reasonable concerns regarding the use of atypical antipsychotics for treatment of positive symptoms in SPD. Due to the nature of these "organized" delusion-like symptoms that may be more appropriately labeled as "bizarre" or "odd" beliefs, patients may be subjected to escalating doses of medications without signs of improvement. This lack of benefit may then expose patients to unnecessary medication-induced adverse effects. In instances where patients present with fewer symptoms of perceptual or sensory disturbances and more of rumination and social anxiety, trials of selective serotonin reuptake inhibitors (SSRIs) such as sertraline may be more appropriate.[24]

Therapy

SPD is particularly difficult to treat with therapy due to patients' paranoid tendencies hindering the development of a therapeutic alliance. It may be slow and painstaking, often requiring a long-term commitment on the part of the clinician.[25] In general, initial supportive therapy is necessary for patients with severe impairments in order to improve activities of daily living. This can be followed by individual and cognitive-behavioral therapy including problem-solving skills and cognitive restructuring. Clinical data also indicate an increased success in symptom improvement with simultaneous family therapy. It is suggested that only when patients develop sufficient insight and correct interpretation of social interactions should they begin a trial of group therapy.

Prognosis

Common Comorbidities

Most patients with SPD will not develop full psychosis or progress to schizophrenia.[26] However, SPD does show high comorbidity with several other psychiatric disorders, with one study suggesting bipolar disorder types 1 (22.3%) and 2 (5.1%), major depressive disorder (15.5%), social (19.4%) and specific (25.6%) phobias, posttraumatic stress disorder (29.6%), generalized anxiety disorder (20.0%), substance use disorder (31.1% for nicotine dependence and 20.6% for any alcohol use disorder), and borderline (odds ratio 26.5) and narcissistic (odds ratio 13.6) personality disorders.[6]

Progression to Other Disorders

While adolescent SPD has been shown to predict the later onset of primary psychiatric diagnoses such as major depressive disorder, it is also important to keep in mind the reciprocal relationship between primary psychiatric diagnosis and personality disorders.[27] For example, it is possible for early diagnoses of primary

psychiatric illnesses to predict the adulthood onset of personality disorders.[28]

Adulthood Functionality

Most researchers agree that personality traits may be fluid throughout development into adulthood. Thus, in some adolescents with SPD, the symptoms may resolve as patients progress through different social environments and life stressors. However, evidence also suggests that different dimensions of an individual's personality display various degrees of stability. For example, in a study of patients with SPD over a two-year period, the most prevalent and least changeable phenotypes were paranoid ideation and unusual experiences, while the least prevalent and most changeable were odd behavior and constricted affect.[29] The authors further concluded from the results that the symptoms most likely to remain are those associated with attitudes and belief systems, while those likely to improve are associated with external behaviors and reactivity. In general, however, adolescent SPD is associated with myriad negative long-term effects, including high familial conflict during adulthood transition (i.e., ages 17 to 27), as well as a decreased adulthood quality of life.[4]

Conclusion of Case Vignette

After admission for the most recent episode of suicidal and homicidal ideation, Jenny's risperidone dosage was adjusted to target her psychotic symptoms of auditory and visual hallucinations, as well as delusions of homicidal activities. She also participated in inpatient group therapies, as well as a few sessions of family therapy. She was discharged to the partial hospitalization program after 12 days of inpatient care. At discharge, patient denied suicidal and homicidal ideations, but did endorse persistent, though reduced, frequency of visual hallucinations and telepathic thoughts. Patient did experience mild extrapyramidal effects from risperidone, with the highest abnormal involuntary movement scale score being 3. For the side effects, she was given 0.5 mg of benztropin twice per day along with the 1.5 mg of risperidone at bedtime and 30 mg of fluoxetine daily. In the partial hospitalization program, Jenny's condition remained stable. She continued to report personal beliefs consistent with SPD traits during interviews, including experience of seeing ghosts, preference for dark spaces, distrust of others, feeling misunderstood, and believing that dragons provide her protection and confidence. An interesting aspect of Jenny's case is that, in agreement with studies of SPD comorbidities, she has symptoms suggestive of anxiety- and depression-related disorders. These symptoms initially dominated the patient's presentation, resulting in a delayed unmasking of the underlying SPD symptoms that contribute to and exacerbate the other diagnoses.

Conclusion

By using Jenny's case to discuss adolescent SPD, the current work encourages medical student educators to engage students in the general discussion of understanding personality disorders. A basic assessment and treatment flow chart is included with this text (Figure 1) to serve as an educational tool for students. We hope that educators will challenge the hesitancy of, and concerns with, diagnosing adolescent populations with personality disorders. A recent article addressing some of the common obstacles eloquently dispelled many of the myths surrounding proper assessment and treatment of adolescent personality disorders.[30] We also hope that the case vignette may provide educators with some questions for students to consider in adolescent SPD. For example, might there be adverse effects or inaccurate score results with the use of personality questionnaires in this age group? How might the process of normal identity development interact with the odd beliefs and eccentric themes? In addition, prompting students to think of the risks and benefits of antipsychotic use in the treatment of SPD would not only enhance pharmacology understanding but also best practice recommendations. In sum, it is ultimately for the benefit of the adolescent to receive a proper diagnosis and treatment plan, and care must be undertaken to fairly and accurately assess the patient through gathering as much evidence as necessary to make a sound judgment.

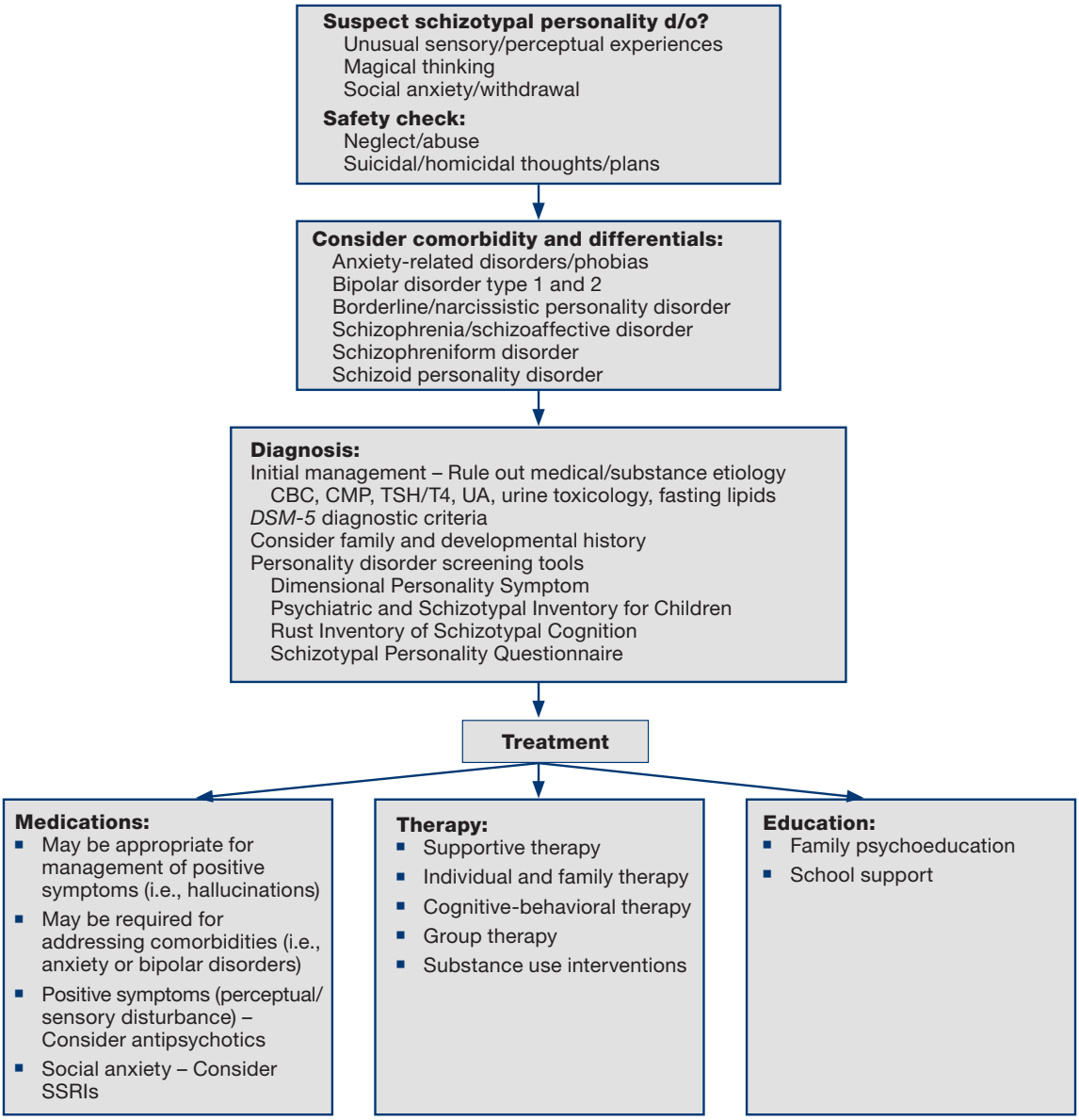

Figure 1. **Basic assessment and treatment flow chart for adolescents with suspected schizotypal personality disorders. *Note:* CBC = complete blood count; CMP = complex metabolic panel; d/o = disorder; SSRI = selective serotonin reuptake inhibitor; TSH/T4 = thyroid stimulating hormone/free T-4; UA = urinalysis.**

Take Home Summary

Personality disorders can be diagnosed and treated during adolescence but are often subtle and complex. Case vignettes can be helpful educational tools for engaging trainees' critical thinking skills and teaching the nuances of personality disorders during adolescence.

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