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Case Report

First-Episode Psychosis Precipitated by Covid-19 Epidemic in a Patient with Mild Autism Spectrum Disorder

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Abstract

This case report outlines the development of psychotic symptoms including delusions and paranoia related to the COVID-19 outbreak in a patient with a background history of high functioning autism spectrum disorder. The patient experienced deterioration and new onset psychotic symptoms due to significant changes in his routine when the COVID-19 pandemic necessitated lock-down measures in Ireland.

This patient had no prior known history of any mental illness other than anxiety which was managed by a private psychiatrist. This case demonstrates the impact that a global pandemic can have on vulnerable individuals resulting in the triggering of psychosis and a breakdown in the ability to process changes in reality. Patients with such developmental vulnerabilities would benefit from monitoring and early intervention in recognising and treating psychotic symptoms.

Keywords: Stressors in autism spectrum disorder; Psychosis and ASD; New onset psychosis in pandemic; New onset psychosis in ASD; ASD in pandemic

1. Background

There has been much emphasis in the global media on the potential of the COVID-19 pandemic to lead to increased anxiety and depressive symptoms and several recent reports have indicated there is also a risk of new onset or exacerbation of psychotic symptoms [1, 2]. There have been cases published outlining new onset psychosis, however few cases have been considered in the context of co-morbidity with autism spectrum disorder (ASD). ASD, a neuro-developmental disorder, is known to increase the risk of stress-induced psychotic symptoms as a result of particular genetic tendencies and cognitive vulnerabilities [3].

Emotional stressors and changes to routine precipitate episodes of anxiety, derealisation and obsessive thinking patterns in ASD which can develop into psychosis [4]. The COVID-19 pandemic has caused much restriction to movement, interactions and occupational functioning and creates the ideal circumstances for the development of psychotic symptoms in persons with ASD [5, 6].

This report outlines the case of a 24-year-old single man admitted to an acute mental health unit in Ireland with first-episode psychosis. He presented with classic symptoms of psychosis which included persecutory delusions, prominent auditory hallucinations, and formal thought disorder. These symptoms had emerged in the preceding weeks following the implementation of nationwide restrictions due to the Covid-19 pandemic and the temporary loss of his employment due to the restrictions. Although he had a diagnosis of mild autism spectrum disorder (ASD), he had never previously experienced a psychotic episode, and there was no family history of mental illness. This patient was an active, highly-functioning man who, prior to this episode, had been working full-time, involved in various sports and maintaining good relationships with his friends and family. This case highlights how a global event such as the ongoing Covid-19 pandemic, and the resultant socioeconomic restrictions, can act as a significant psychosocial stressor resulting in a deterioration in mental health and the precipitation of an acute psychotic episode in a person without a personal or family history of psychosis but with a background history of mild ASD.

2. Case Presentation

This is a case report of a 24-year-old man, unknown to the mental health services, referred by his general practitioner (GP) for emergency psychiatric assessment. His symptoms had begun in mid-March 2020 after he had been temporarily laid off from his job due to the Covid-19 national restrictions. His initial symptoms included anxiety and insomnia, which were treated by his GP with a combination of sertraline and alprazolam. Although his anxiety symptoms improved initially, there was a subsequent emergence of prominent paranoid delusions whereby he believed that he was ‘trapped in a virus mind game’ and that ‘whoever goes outdoors would be shot’.

The distress associated with these delusional beliefs escalated to the point of psychiatric admission four weeks from onset. The patient has a background history of high functioning autism which had been diagnosed privately two years ago. The patient had

been impacted in the past by other social difficulties but had always maintained good occupational functioning.

He believed that Covid-19 was 'a mind game and trick', that everybody was in danger of dying and that his family were poisoning him with drugs. He expressed some uncertainty about whether he was dead or alive. He admitted to experiencing auditory hallucinations and described hearing a group of over ten voices, which were also involved in the 'virus mind game'. He became preoccupied with personal hygiene as an infection control measure, which resulted in him taking numerous showers every day. This patients' beliefs were held with delusional intensity, his need for cleanliness occurred as a result of his delusions and were accompanied by the other aforementioned psychotic features. The presentation and pattern of his symptoms was consistent with new onset psychosis and did not resemble obsessive compulsive disorder.

On mental state examination following admission to the acute mental health unit, he appeared perplexed and displayed poor eye contact. His speech was low in volume and slow in rate. The patient was guarded, suspicious and easily overwhelmed by activity in the unit. He described experiencing persecutory delusions. In relation to thought form, he exhibited derailment and thought-blocking. He was disorientated to time and place. These symptoms persisted for the initial few weeks of his admission. On further exploration, the lockdown seemed to be the first time that this patient's routine was challenged and changed in an impactful way.

3. Investigations

Physical and neurological examinations were normal. He had normal vital signs. All blood tests, including full blood count, urea and electrolytes, liver function tests, thyroid function tests, CRP, prolactin levels, vitamin B12, folate,vitamin D levels, bone profile and an electrocardiogram (ECG) were normal. CT and MRI brain scans did not show any abnormality.

4. Treatment

The patient was admitted to the high observational unit and initially treated with olanzapine 10 mg at night, which was later increased to 15 mg. Alprazolam 0.5 mg twice a day was commenced to treat his agitation . This was discontinued due to lack of relief of his symptoms and he was commenced Lorazepam 0.5 mg three times a day with planned reduction over time. Sertraline 100 mg, previously started by his GP, was continued.

5. Outcome and Follow Up

Following 15 days of admission his mental state had improved significantly to the point of being suitable for discharge and follow up in the community setting. His beliefs were no longer of a delusional intensity but he remained preoccupied with excessive personal hygiene and infection control measures. He was discharged to the care of his community mental health team with support from a community mental health nurse and review by psychiatry at the outpatient clinic. He had excellent family support.

He was reviewed as an outpatient weekly for over six weeks and olanzapine was cross-titrated to aripiprazole due to weight gain, over sedation and mild oro-facial tardive dyskinetic movement. He

achieved full remission on aripiprazole 20mg with sertraline 100mg daily. 'Lorazepam had been tapered down and discontinued.

6. Discussion

High functioning autism including Asperger syndrome is a pervasive developmental disorder generally regarded as being a milder variant of the autism spectrum. While Asperger syndrome has been included in the ICD-10 and DSM-V as a distinct diagnostic entity, it is still unclear to what extent it differs from high functioning autism (HFA). [7] Persons with HFA have been reported to show a variety of deficits of thought processes. Persons with autism demonstrated a trend towards greater levels of disorganized thinking than the HFA group [8]. Social cognition is believed to contribute to symptoms of anxiety and disability, particularly for disorders characterised by social impairment, including ASD, and psychotic disorder [9].

A breakdown in social cognition can result in misinterpretations, mislabelling and the potential for paranoid belief formation [9]. Impairments in social cognition may further reduce the capacity to engage in, and subsequently enjoy, social experiences. The loss of reward associated with social experiences may then exacerbate social withdrawal [10].

In this case, the patient could not adhere to his long-term routine at work and with family due to nationwide restrictions. Changes to his regular schedule and outlets resulted in the precipitation of a deterioration in his mental state and disordered reality interpretation not long into the first lockdown in Ireland.

Along with genetic predisposition, social exclusion which is common in ASD, has been hypothesized to be an important risk factor for new onset psychotic disorder[11]. Unexpected changes, prevention of being able to engage in preferred behaviours and sensory sensitivities could be perceived as traumatic, especially when such distress continues on a regular basis, and can subsequently lead to co-morbidities including psychosis [12].

There are reports of the significant impact of previous epidemics, Severe Acute Respiratory Syndrome-associated coronavirus (SARS-CoV) and Ebola, on mental health with the emergence of several psychiatric disorders including post traumatic stress disorder, anxiety and depression [2]. The current national and worldwide quarantine measures have resulted in pressure on mental health services due to the prevailing anxiety and a deterioration of mental health on a significant scale. There have been many new cases of depression, anxiety and psychotic disorders since the restrictions were introduced with most patients citing the lockdown as a major stressor [13].

For patients with pre-morbid vulnerabilities in coping and perception, as seen in ASD, there is a substantial risk of decomposition and development of further disorders [9]. 72% of persons with ASD are reported to be suffering a deterioration in their mental health since the pandemic began in March 2019 [14]. Persons with vulnerabilities to psychosis have additional needs which require prioritization in the consideration of resources during the COVID-19 pandemic. Studies have shown that 5% of persons with new onset psychosis have co-morbid ASD [15].

It is reasonable to consider the potential benefit of monitoring persons with ASD for psychotic symptoms and of increasing awareness of the connection between ASD and psychosis among mental health teams and early intervention services.

7. Learning Points/Take Home Messages

- Acute psychotic episodes are a risk in patients with ASD precipitated by stressful life events resulting in significant co-morbidity and deterioration.
- Global events and their related impacts can act as significant psychological stressors in persons with predisposing factors and cognitive vulnerabilities.
- Early recognition and intervention is important in the future prevention and treatment of psychotic episodes. Consideration needs to be given as to how to manage patients with ASD to avoid deterioration in functioning.

8. Data Availability

Data used to support the findings of this study are included within the article.

9. Additional Points

Adapted from patient: From the start of my admission, I made it clear that my job and daily functioning are important to me and that the COVID-19 lockdown was extremely difficult for me. I had never experienced these symptoms before the lockdown, I was always an anxious child with difficulties socializing but my confidence plummeted after I stopped work. I feel that losing my independence and routine led to my mental illness.

Ethical Approval

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committee on human experimentation with the Helsinki Declaration of 1975, as revised in 2008. The authors assert that ethical approval for publication of this case report was not required by their local ethics committee.

Disclosure

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Conflicts of Interest

The authors, Dr. Ivona Kusen, Dr. Eimear O' Neill, Dr. Mary I Butler, Dr. Maura Young and Dr. Fahmi Ismail do not have any conflicts of interest to report.

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