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Article

Diagnosis and Management of Catatonia via Telepsychiatry: A Clinical Practice Guide

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Abstract: Background: The uneven distribution of psychiatrists across the United States has led to a significant deficiency in psychiatric care, particularly in rural and remote areas. Telepsychiatry has emerged as an effective solution to bridge this gap, providing comparable outcomes to in-person services. **Objective:** This clinical practice guide aims to highlight the effectiveness of telepsychiatry in diagnosing and managing catatonia, a complex neuropsychiatric condition whose diagnosis often requires physical examination, through consultation-liaison (CL) psychiatry services. **Methods:** We describe a clinical practice guide based on the CL Psychiatry service's experience at The University of Pittsburgh Medical Center. We utilize fictional cases to illustrate commonly encountered challenges and their solutions. In each case, CL psychiatrists located in the university hospital diagnosed and managed catatonia via telepsychiatry in patients medically hospitalized in non-urban hospitals with assistance from an in-person clinician. Each case illustrates assessment for diagnostic accuracy and treatment outcomes using the Bush Francis Catatonia Rating Scale. **Results:** The use of telepsychiatry facilitates timely diagnosis and treatment of catatonia. These fictional cases are meant to illustrate the viability of CL telepsychiatry in managing complex conditions like catatonia in the medical setting and provide a framework for the discussion of our suggestions. **Conclusion**: CL Telepsychiatry is a critical tool in addressing the shortage of psychiatric care in underserved areas. It may be effective in facilitating the diagnosis and treatment of catatonia in medical hospitals, ensuring patients receive timely and appropriate care.

Keywords: telemedicine; telepsychiatry; consultation-liaison psychiatry; catatonia; neurology; internal medicine; rural mental health

1. Introduction

Catatonia is a complex neuropsychiatric syndrome characterized by motor and behavioral signs and may occur because of multiple medical, psychiatric, and neurological conditions [1,2]. Catatonia is diagnosed through a variety of validated rating scales, the most common of which is the Bush-Francis Catatonia Rating Scale (BFCRS) [3]. The assessment and diagnosis of catatonia generally requires a physical examination, as symptoms such as rigidity, waxy flexibility, *mitgehen*, *gegenhalten*, and grasp reflex, require hands-on examination [3]. Catatonia has a prevalence of 10-25 % in acute psychiatric inpatients, but estimates show it can be present in up to 3% of acute neurology patients and 4 % of patients in intensive care [2]. Other studies have found prevalences of up to 20% in patients with general medical conditions [4] and up to 35% in intensive care patients [5].

Catatonia is often underdiagnosed in the general hospital [2,6], with retrospective studies showing up to 59% of cases not diagnosed during admission [1]. Consultation-liaison psychiatry (CL) is a sub-specialty of psychiatry focused on the diagnosis and management of psychiatric disorders that are comorbid with general medical/surgical illness [7]. As such, CL psychiatrists, given their expertise at the interface of medicine and psychiatry, are uniquely poised to diagnose and treat

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catatonia. A retrospective chart review study of patients deemed to meet criteria for catatonia showed a greater than 44 times odds of diagnosis of catatonia in the general hospital when CL Psychiatry has been consulted during the admission versus when it was not [1]. However, access to consulting psychiatrists may often be limited in remote and rural areas [8,9]. The 2017 Merrit Hawkins report, which provides insights into physician supply and demand highlights an uneven distribution of psychiatrists around the country [10]. 80% of rural counties lack even a single psychiatrist [11].

Telepsychiatry may present a solution for these remote hospitals to effectively diagnose and treat catatonia [3]. CL psychiatry services have developed telepsychiatry consultations to remote hospitals, which has shown satisfactory clinical outcomes and patient satisfaction [8,9]. The biggest challenge to the diagnosis and management of catatonia using a CL telepsychiatry modality is the inability of the consulting psychiatrist to perform a physical exam via telepsychiatry.

Our CL telepsychiatry service at The University of Pittsburgh Medical Center provides consultations to 6 non-urban or remote hospitals in Pennsylvania. In all of them, there is an on-the-ground clinician (nurse with psychiatric background or master's level behavioral health clinician) to assist with telemedicine evaluations. These clinicians have been trained in performing the BFCRS and the appropriate physical exam maneuvers and assist the CL telepsychiatrists in being able to capture these symptoms and complement the telemedicine evaluation. To illustrate this unique clinical management, we present 3 fictional cases in which catatonia was diagnosed and managed by CL psychiatry via telemedicine. We will also provide guidance based on our service's experience to increase the odds of success when diagnosing and managing catatonia via CL telepsychiatry.

2. Illustrative cases:

Please note that the following cases are fictional. They are constructed only for illustrative purposes and do not describe any real individual and do not contain any protected health information.

a. Case 1

Case 1 58 year-old male, Mr. A with a past medical history of hypertension, asthma, irritable bowel syndrome and a psychiatric history of bipolar disorder maintained on vortioxetine and cariprazine, as well as catatonia requiring electroconvulsive therapy (ECT) in 2009 presented to the medical hospital with increased weakness, falls, and decrease in oral intake over the last two weeks. The CL telepsychiatry team was consulted for change in mental status and refusal of care.

On telepsychiatric evaluation by the CL psychiatrist, with an in-person behavioral health (BH) clinician (trained to perform physical examination), the patient demonstrated the following observable features of catatonia: mutism (1), immobility (1), staring (1), withdrawal (1), and automatic obedience (2). A physical exam by the clinician with CL telepsychiatrist observing via telescreen, revealed oppositional paratonia (*gegenhalten)* (3) for a total Bush-Francis score of 9. Comprehensive metabolic panel, thyroid stimulating hormone, urinalysis, urine drug screen, chest x-ray, EEG, and brain MRI were unremarkable. He had minimal response to initiation of lorazepam at a total dose of 4 mg intravenously (IV) per day. Higher doses of lorazepam totaling 6, 8, and 10 mg per day did not show any additional improvement in serial BFCRS scores. Given Mr. A's history of catatonia and lack of response to benzodiazepine therapy in setting of unrevealing medical workup, he was transferred to an inpatient psychiatric facility on hospital day 4 for further treatment, which included electroconvulsive therapy (ECT). Chart review of inpatient psychiatric admission revealed that the patient responded well to ECT treatments, with significant improvement in catatonic symptoms but were not fully resolved. The patient was discharged home after 7 days with a plan for continued outpatient ECT treatment.

b. Case 2

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Ms. B is a 54 year-old woman with a past medical history of hyperlipidemia, alcohol use disorder, gastroesophageal reflex disease (GERD), scleroderma, and no known psychiatric history who was admitted to the hospital for removal of hip prosthesis due to recurrent infections after a hip replacement. She began refusing medications, food, vitals, and other care starting on admission. A magnetic resolution imaging (MRI) brain was significant for small left posteroinferior/parietal temporal junction stroke. Electroencephalogram (EEG) was notable for multifocal sharp waves but no seizures. CL telepsychiatry was consulted for change in mental status. On interview done with an in-person BH clinician, Ms. B did not follow commands and stated "No," and "I don't want to do that" to most questions. She turned away from the camera and resisted attempts to move or engage her. As the BH clinician (master's degree in social work) on service that day did not have training in doing physical exams for catatonia, the CL telepsychiatrist provided step-by-step instructions on how to perform each component of the exam. The BFCRS was completed based on the psychiatrist's own observations and the clinician's report from the physical exam. Signs of catatonia on exam including negativism/resistance, waxy flexibility, echopraxia, decreased spontaneity of speech, immobility, and relative mutism. Etiology of the patient's catatonia was unclear, however a significant improvement in their BFCRS was noted when given lorazepam 2 mg IV as a one-time dose. The CL telepsychiatry team recommended lorazepam 1 mg IV three times daily as a standing dose; Ms. B received a total of 18 mg over the next 6 days. Amantadine 100 mg orally twice a day was added as an adjunct treatment on hospital day 7 when plateauing of BFCRS scores were noted. The patient's BFCRS scores improved rapidly, and her mental status improved back to baseline with continued treatment over next 2 days. Ms. B was discharged from the hospital with close psychiatric and primary care follow up.

c. Case 3

Ms. C, a 21 year old female with past medical history of Hashimoto's thyroiditis, eczema, attention deficit hyperactivity disorder (ADHD), depression, and anxiety was brought to the medical hospital by her parents due to a month-long history of social withdrawal, poor oral intake, and refusal to shower or change her clothes. CL telepsychiatry was consulted due to concern for depression. The BH clinician was on leave so the hospital offered a floor nurse without any prior BH experience from the medical unit who would facilitate the patient assessment with the CL telepsychiatrist. While the patient and family interview were conducted easily over the telescreen by the psychiatrist, the physical exam was more challenging as the nurse did not have experience with performing BFCRS physical examination or telemedicine assessments. As such, more detailed instructions about camera position and lens angle, room lighting, microphone and speaker positioning were provided by the psychiatrist. While the assessment took longer to perform, a full assessment was ultimately obtained, including a catatonia physical exam. Lorazepam 1 mg IV every 8 hours was started, with noticeable improvement. Daily follow-up was done by the telepsychiatrist, and the same nurse assisted to allow consistency in serial physical exams for catatonia. Ms. C''s catatonic symptoms improved with continued lorazepam therapy and when more alert, she reported symptoms meeting criteria for a severe episode of major depression. The patient was thus transferred to an inpatient psychiatry unit on lorazepam 1 mg orally every 8 hours and sertraline 25 mg daily by mouth.

3. Discussion

The diagnosis of catatonia through CL telepsychiatry can represent a challenge given the inability to obtain a physical exam. Despite this, multiple signs and symptoms of catatonia can be readily examined through telemedicine. Prior studies report that the most common signs of catatonia in hospitalized patients are staring, immobility, stupor, mutism, and withdrawal [2,3]. Stereotypy, mannerisms, verbigeration, negativism, impulsivity, perseveration, and in some cases posturing/catalepsy can be observed through telemedicine evaluation [3]. A prior publication documents a case of diagnosis and management of telepsychiatry and includes a good summary of the signs/symptoms that are observable via telemedicine and those that require hands-on assessment

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[3]. Agitation, grimacing, echolalia, and echopraxia can also be readily seen through telemedicine but the literature reports that these signs are often missed or not attributed to catatonia [2]. Given increased familiarity with these symptoms, as well as with the medical etiologies of catatonia, CL psychiatry teams play a crucial role in diagnosis and treatment of catatonia [1] in rural hospitals that utilize telehealth services.

Consistent with other reports in the literature, these illustrative cases highlight that patients are often consulted for nonspecific reasons such as "depression", "refusal of care", or "altered mental status".[1] As such, it is important for psychiatrists consulting in the medical setting to be mindful of consult questions or phrases that could suggest catatonia. Similarly, it is essential for the CL psychiatrist to perform a thorough chart review for information that could suggest catatonia such as nursing documentation describing possible echolalia, stereotypy, mutism, staring, as well as reviewing vitals for any signs of autonomic instability.

Telepsychiatry has the potential to provide early diagnosis and management of this complex condition, thus reducing the significant morbidity and mortality associated with it. Prior studies on clinician perceptions of telepsychiatry showed that most found its use challenging for patients with catatonia [12]. While the inability to perform a physical examination is certainly a limitation, there have been reports of catatonia diagnosed and managed successfully via telepsychiatry [3]. This article expands on previous reports and provides suggestions to increase success in diagnosis and management of catatonia via telepsychiatry. We also discuss alternatives to obtaining a physical exam when it is required to complement the telepsychiatry evaluation.

4. Clinical Practice Guide

We encourage consulting psychiatrists to consider the following when diagnosing catatonia via telepsychiatry:

a) **Training of the on-site clinician-** Physical examination may not be routine for psychiatric clinicians or other providers assisting with the telemedicine consult. Training the on-site clinician in performing the BFCRS is essential, as it will allow them to detect physical exam findings. Certain signs such as *gegenhalten*, *mitgehen*, waxy flexibility, catalepsy, and grasp reflex require practice and observation to be done correctly. Since the physician is unable to physically examine the patient, this step is crucial. Ideally this should be done with any new hires on the service, but as noted in Case 3, the consulting psychiatrist should be prepared to provide this training in real time to the on-the-ground clinician if the situation calls for it. Working with the on-the-ground medical team may be necessary in some cases to ensure effective training for the clinicians assisting the telepsychiatrist.

b) **Quality of the audiovisual connection**- Having a high-quality connection, with proper audio and high-resolution video is important to allow proper telemedicine examination. Poor video quality may make it difficult for physicians to appreciate signs such as grimacing or echopraxia. Poor audio connection may make it difficult for physicians to hear low volume sounds from patients. Visualization of the entire body is necessary to capture abnormal movements and postures. On-the-ground clinicians may need specific instructions to ensure good lighting and camera angles are achieved.

c) **Using the primary team as a resource and primary team education**- Primary teams may be able to assist in performing necessary physical exam maneuvers, with guidance from the psychiatrist. This also provides the opportunity for the psychiatrist to educate hospitalists and other providers on other important and common signs of catatonia, such as agitation, grimacing, and echolalia.

d) **Chart review**- Careful review of laboratory results, toxicology, and brain imaging/ electroencephalographic results is essential to distinguish symptoms of catatonia that may be overlapping with other conditions, such as delirium.

e) **Using standardized scales**- The BFCRS is a 23-item scale that defines each catatonic sign, rates its severity, and provides a standardized schema for clinical examination. Catatonia can be diagnosed when 2 or more signs are present for greater than 24 hours [13]. Using a standardized scale allows clear communication between providers and while it has its limitations due to symptom overlap with other conditions, this may still help reduce missed diagnoses.

5. Conclusions

While challenging, the diagnosis of catatonia through telepsychiatry is possible. To increase the odds of success, the CL psychiatrist must be aware of typical consult questions that suggest catatonia, such as "refusal of care/withdrawal" or "depression". Most of the signs and symptoms of catatonia can be accurately captured via a good quality audiovisual connection. The assistance of on-site clinicians can help the telepsychiatrist capture physical exam findings that are not possible via telemedicine. Proper training of the on-site clinician in performing these maneuvers is essential.

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