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Electroconvulsive Therapy: A Frontline Treatment to Consider

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Abstract

Although pharmacological interventions have long been the gold standard for treatment of psychosis, electroconvulsive therapy (ECT) has been found to facilitate positive outcomes in cases of treatment resistant conditions. ECT is often implemented after other modalities have been exhausted or when patient conditions, such as neuroleptic malignant syndrome (NMS), provide the impetus to explore alternative means for stabilization. The strong possibility of recurrent NMS poses a serious patient risk that gives rise to consideration of alternative methods, such as ECT, early in subsequent psychiatric hospitalizations. Use of ECT as a frontline therapy for patients with a history of NMS, especially recent, is an important means of safely realizing stabilization. This paper will present a case scenario that exemplifies the benefits of ECT when utilized in this fashion.

By nature, psychiatric nurse practitioners should consider all means of treatment to holistically meet the mental health needs of patients. Education on ECT as a frontline therapy, rather than as a last resort, could effectuate meaningful change to psychiatric practice. Additional research is vital to fortify current findings that carry the potential to facilitate innovative advances in practice.

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Introduction

In order to ensure that patients can realize the best possible outcomes, nursing must look to implementation of innovative evidence-based practice. Psychiatric advanced practice nurses can effectuate meaningful change to the practice of caring for those patients who have experienced NMS. As healthcare continues to realize advances through innovative pharmacological approaches, psychiatric providers must also look to new ways to treat the mentally ill patient population while avoiding recurrence of NMS. Medications have long been a principle tool to achieving positive outcomes. However, the use of ECT as a frontline option could prove to be more efficient and effective.

Background and Rationale

Background

Severely decompensated psychiatric patients face the possibility of lengthy hospitalizations and the implementation of polypharmacy before returning to their baseline. Although the pharmacological approach as the prevailing treatment methodology has been generally effective, it is not always so with the most ill. Multiple failed pharmaceutical trials often transpire before ECT is mentioned, even in cases where it may not be indicated as the best frontline option.

Aggressive treatment with multiple neuroleptic medications can not only impose an intolerable side effect profile but also increase the possibility of serious conditions, such as neuroleptic malignant syndrome (NMS). While the use of ECT has historically been perceived

as either controversial or as a last resort option, a substantial body of research has highlighted the treatment's safety and efficacy (Rodriguez-Jimenez et al., 2015).

The implementation of ECT as a frontline intervention in admissions that are subsequent to NMS related hospitalizations could result in rapid stabilization while avoiding the possibility of harmful effects related to neuroleptic medication rechallenge. The case of patient, KB, highlights the need for this consideration. He has a history of schizoaffective disorder, depressive type and catatonia, with a presentation significant for increasing psychosis and agitation. Although already prescribed multiple antipsychotics, aggressive behaviors required administration of an additional neuroleptic. His condition rapidly deteriorated over the course of evaluation displaying symptoms consistent with NMS.

Rationale

Lengthy admissions with tedious neuroleptic titrations or complicated regimens can prove taxing for patients. Polypharmacy in chronically mentally ill patients can further exacerbate matters and lead to the development of NMS. Earlier implementation of existing treatments can more safely facilitate a rapid improvement in symptoms while preventing patients from exposure to polypharmacy, NMS and extra pyramidal side effects. Early implementation of electroconvulsive therapy, especially in those patients that have previously experienced NMS, would be facilitating efficient, streamlined care.

Case Report

KB is a 63 year-old male with a psychiatric history that is significant for schizoaffective disorder – depressive type, major neurocognitive disorder, intellectual disability (IQ 67), and

seizure disorder. He was brought into the hospital from his assisted living facility because he had not slept in approximately one week and was repeating the phrase “help me”.

KB has a history of many previous psychiatric admissions, with the most recent stretching from June 26, 2020 to August 17, 2020. During that hospitalization, KB had been admitted for psychotic thought process, auditory and visual hallucinations, and aggression. While being evaluated in the emergency department, his condition rapidly deteriorated. He exhibited worsening agitated behaviors, including spitting, striking others, hitting on his bed rails. He was diaphoretic, disoriented, and stripping off his clothing. KB required multiple rounds of antipsychotic medications to even begin mitigating his agitated behaviors. After a few days of this treatment, he had an acute change in mental status. KB sat at the edge of his bed without moving, eating, drinking, or taking medications. He had an elevated temperature, was diaphoretic, displayed muscle rigidity and was no longer able to participate in conversation. He was admitted to inpatient medicine for evaluation of possible neuro malignant syndrome (NMS) vs delirium vs encephalopathy vs catatonia.

He remained agitated and began speaking in word salad. KB displayed increased rigidity and dystonia. Upon admission, his neuroleptic medications, including Clozaril, Geodon and Zyprexa, had been stopped. Labs were found to be within acceptable limits, and an EKG did not reveal any abnormal dysrhythmias. With the recommendations of his outpatient provider and a consulting psychiatrist, an acute series of ECT was initiated. Over the course of 13 treatments, KB slowly stabilized, his thought process became more organized, and his behaviors more controlled. Lamictal was titrated to 200 mg in the morning and 100 mg at night. Risperdal was titrated to 1 mg at bedtime. He was discharged with a plan to continue with maintenance outpatient ECT. However, KB contracted the COVID-19 virus and was unable to participate in

the treatment for over a month. During this time, his psychiatric wellbeing decompensated and the previously exhibited behaviors resurfaced. At the time of his current psychiatric readmission, KB's COVID-19 illness had resolved without any major sequelae. There was a great deal of apprehension that aggressive treatment with neuroleptic medications may precipitate a repeat of NMS. For these reasons, an emergency treatment order was pursued in mental health courts and ECT was reintroduced. KB remains hospitalized at this time and has completed three treatments thus far.

Literature Review

Neuroleptic malignant syndrome (NMS) is a rare adverse reaction to psychopharmacological medications. Key symptoms include muscle rigidity, altered mental status, elevated temperature and autonomic dysfunction Onset can be nuanced with some instances occurring closely after introduction of neuroleptic medications, while others occur many years later. Although NMS is rather uncommon with incidences occurring in up to three percent of patients, it has relatively high mortality rate that can reach up to 20 percent (Gonzalez-Blanco et al., 2013). The exact etiology of NMS remains unknown. It is felt that an alteration of dopamine regulation occurs that leads to hyperthermia, rigidity, and other symptoms. Other theories point to genetic predisposition of dopamine receptor development, alterations in skeletal muscle that lead to toxicity, or a possible acute neuroimmunological response (Gonzalez-Blanco et al., 2013). Regardless of etiology origin, the combination of antipsychotic medications is a risk factor for the development of NMS.

The first line treatment of NMS is the immediate elimination of antipsychotic medications and subsequent treatment of symptoms. After recuperation from NMS, the patient's underlying psychiatric symptoms remain. In the absence of previously stabilizing neuroleptic

medications, the patient may even decompensate from baseline. The prevailing notion is that the chronically mentally ill often require some level of pharmacological therapy to maintain long-term stability. However, quick reintroduction of neuroleptic medications, especially those with high potency, poses the greatest risk of NMS recurrence. Significant risk remains, however, even with slow titration or the use of less potent, atypical antipsychotics. (Gonzalez-Blanco et al., 2013). Due to this risk, alternative interventions for stabilization, such as ECT, must be explored.

ECT is the electrical induction of seizure activity as a means of facilitating psychiatric stabilization. Although its exact mechanism of action remains elusive, theories point to direct effect upon dopamine and serotonin transmitters within the brain (Gazdag & Ungvari, 2019). New findings have pointed to ECT improving brain plasticity and stimulating neurogenesis (Gazdag & Ungvari, 2019). Regardless, the results of ECT are relatively undisputed. It stands out as one of the most effective treatments for psychosis.

Research supports the use of ECT as a safe and efficacious treatment across the spectrum of psychiatric diagnoses, including that of affective disorders, psychosis, and catatonia (Bulteau et al., 2018; Maletzky, 2004; Tørring et al., 2017). Additionally, studies show that ECT is a highly effective treatment for patients experiencing catatonia, no matter the etiology (Kugler et al., 2015). Despite its broad success, professional and public attitudes toward the treatment over the past 80 years have often been shrouded in controversy.

Misleading representations in film and other media have led to a persistently negative views from both a professional and public standpoint (Gazdag & Ungvari, 2019). Compounding the controversy is the exaggeration of side effects, especially that of memory loss. In fact,

measures have been taken to improve safety while minimizing adverse effects (Gazdag & Ungvari, 2019).

Despite these improvements, ECT has traditionally been implemented after other pharmacological interventions have been exhausted (Haskett & Loo, 2010; Heijnen et al., 2010). In fact, medication trial failures are commonly a prerequisite to the initiation of ECT. This may be due to commonly held beliefs that pharmacological treatments are less imposing than ECT. It is these unsuccessful medication trials that can and do lead to serious situations, such as neuroleptic malignant syndrome.

After the onset of NMS, initial treatment focuses upon the elimination of neuroleptic medications and immediate introduction of supportive treatment of symptoms. After achieving medical stabilization, focus can turn to treatment of the predominant psychiatric symptoms behind the contributing polypharmacy. In the face of life-threatening syndromes, such as catatonia or NMS, ECT has proven itself as a highly effective first line psychiatric treatment option (Gazdag & Ungvari, 2019). For example, use of ECT in cases of malignant catatonia were found to facilitate a rapid recovery and discharge from intensive care situations (Bulteau et al., 2018).

With the chronically mentally ill, the reintroduction of neuroleptics is something that becomes a necessity. This rechallenge is often the case even in patients with a history of NMS. Slow titration of a heretofore untested antipsychotic medication is key to this process (Pileggi et al., 2016). However, neuroleptic rechallenge situations predispose these patients to possible recurrence of NMS. Additionally, rechallenge trials can prove ineffective and readmission becomes necessary. Subsequent psychiatric admissions should look to ECT as a frontline

treatment option for severe psychiatric decompensation as a means of avoiding possible NMS situations.

ECT has been found to be efficacious as a frontline treatment option. However, the measurement tools used to assess efficacy and remission rates differ widely throughout the research, begging to question the comparable consistency of the findings from study to study (Agarkar, et al, 2018; Heijnen, et al, 2010). Although much research advocates that additional studies are necessary to further solidify the idea of ECT as a frontline option, there is a growing body of work that indicates ECT to be a cost effective treatment that also improves outcomes (Rodriguez-Jimenez, et al, 2015; Ross, et al, 2018).

Despite the promise that the application of ECT offers as a first line option in symptom stabilization, current studies push for further research to reinforce the findings that relatively small sample sizes have put forth thus far (Agarkar, et al, 2018; Haskett & Loo, 2010; Heijnen, et al, 2010). It is perhaps because of this relatively small body of evidence that only a few advocate for the use of ECT as a frontline therapy despite signs supporting the idea (Ross, et al, 2018).

Practice Recommendations and Implications

Practice Recommendations

Research supports the efficacy of ECT in the treatment of acutely ill psychiatric patients, especially as a frontline means of stabilization and prevention of NMS recurrence. Based on the evidence, a three-pronged practice recommendation based in education would be implemented. This shift in practice can only be realized through the application of teaching strategies aimed from the systemic level all the way to the patient level.

Healthcare administration would be the initial target as policy for practice is approved at this level. In order to implement this recommendation, executive leadership and psychiatry heads would need to be in full support. When those in authority are convinced, providers will feel supported in asserting this approach is valid with their patients.

Educating providers on the efficacy of ECT as a first line option would be the next logical step to the incorporation of this practice recommendation. Informed frontline nursing staff would be directly involved as they are instrumental to the patient education process. Providing a variety of learning materials – video, support groups, and literature are all ways to convey the necessary information regarding ECT, its efficacy, its effects, and firsthand accounts from previous patients.

Facilitating patient education after stabilization would ensure that patients and families are able to make informed decisions that would be the most beneficial to their care. Psychiatric patients and their families would require not only information on the dangers of recurrent NMS but also how ECT is the best means of prevention and stabilization. This sort of patient education can guide informed decisions that impact the formation of healthcare directives in support of ECT.

Implications

The focus of patient education would be primarily on the safety and efficacy of ECT in general but also in how it compares to pharmacological approaches in those with a history of NMS. In today's instant gratification society, people want results as quick as possible. Making a case for ECT as the best means of safely facilitating stabilization may lead to increased patient and systemic support. A secondary focus would be dispelling any myths associated with ECT and stressing the safety of the treatment.

Education on any level requires time, training and monetary support. Additionally, systemic change that advocates for ECT as a frontline option may meet resistance. Efforts that require additional administrative persuasion would precipitate a longer time continuum. Meanwhile, educational materials for providers and patients could be developed and deployed.

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