SCIREA Journal of Medicine
ISSN: 2995-7060
http://www.scirea.org/journal/PM
April 1, 2024
Volume 8, Issue 1, February 2024
https://doi.org/10.54647/pm310252

Psychotic Illness: A trial of maintenance ECT

Athar Abbas [1,*], James Rand [1], Mehraj Shah [1]

[1] East London NHS Foundation Trust, Onyx Ward, Luton Centre for Mental Health
Off Calnwood Road, Luton, LU4 0FB, Bedfordshire, England, United Kingdom

*Correspondence: atharabbas@nhs.net (Athar Abbas)

Tel.: 00441234 315690

Abstract

Schizophrenia is an enduring psychiatric illness that is classed as a type of psychosis and typically presents with a combination of hallucinations, delusions, disordered thinking, and behaviour which results in functional impairment [10].

The National Institute for Health and Care Excellence (NICE) recommends that individuals diagnosed with Schizophrenia should be offered antipsychotic medication along with psychosocial interventions [8]. Other treatment modalities in the management of Schizophrenia have been used including Electroconvulsive therapy (ECT) [4].

In this case report, we present a lady with schizophrenia who is well-known to the mental health services. The nature of her illness is chronic, spanning several decades, and over the years, she has either had a suboptimal response or developed significant side effects/adverse reactions, including dystonic reactions and two episodes of Neuroleptic Malignant Syndrome. As a result, she has mostly received maintenance Electroconvulsive Therapy (ECT) for the past 5 years.

Keywords: maintenance ECT, Schizophrenia, ECT

Introduction

Schizophrenia can present with debilitating and distressing features. The symptoms of schizophrenia are described as 'positive' and 'negative' with the former involving hallucinations, delusions, and thought disorder and the latter including individuals withdrawing from society, self-neglecting, and presenting with emotional flatness [9].

The prevalence of a disease is defined as the proportion of the population who are suffering from the disease. The Royal College of Psychiatrists estimates that around 1 in every 100 people suffer from Schizophrenia throughout their lifetime. It affects men and women equally however appears more prevalent in ethnic minority groups and between the ages of 15-35 [9].

The National Institute for Health and Care Excellence (NICE) recommends that individuals diagnosed with Schizophrenia should be offered antipsychotic medication along with psychological interventions and social support [8].

Other treatment modalities have been utilised in the management of schizophrenia including Electroconvulsive therapy (ECT). ECT is a medical treatment that involves using electrodes to pass electrical currents through the brain to intentionally induce a controlled seizure. ECT is considered safe and effective in specific cases but does come with side effects [12]. The main side effects are nausea, headache, fatigue, confusion, and memory impairment.

ECT was used as a treatment option for schizophrenia at its inception but was later replaced by antipsychotic drugs in Western countries [3]. In terms of its efficacy, a Cochrane review undertaken by Tharyan & Adams 2005 suggested that "ECT, combined with treatment with antipsychotic drugs, may be considered an option for people with schizophrenia, particularly when rapid global improvement and reduction of symptoms is desired" [11].

Furthermore, evidence exists to support the use of ECT in patients with treatment-resistant schizophrenia (TRS) [1]. Kane et al. 2019, stated that "in some circumstances (eg, high risk of suicide), a treatment duration of 2 weeks may be sufficient before considering if additional clinical intervention is needed. The use of alternative pharmacotherapies, including clozapine, or nonpharmacologic adjunctive treatments (eg, CBTp, ECT, rTMS, HIT) should be considered if treatment response is not optimal'' [5].

Case report

Ms X is a 55-year-old female who had several admissions throughout her life. Her symptoms predominantly fell into three categories, outlined in the table below.

Psychotic	Affective	Cognitive
• Auditory hallucinations of the devil swearing at her, telling her to 'go to hell', commanding when to eat, stopping her from taking medications • Tactile hallucinations in that she claimed to have sex with the devil • Responding to unseen stimuli • Persecutory delusional beliefs about the devil trying to murder her or that staff were poisoning her through medications • Delusional belief that she died or would imminently die • Poor oral intake as she believed she died • Guilt of committing a serious crime and surrendering herself to the prison service	• Mood fluctuation including manic symptoms and severe depressive illness associated with suicidal tendencies including tying ligatures around her neck • Sexual disinhibition characterised by taking her clothes off, exposing private parts, and masturbating • Self-neglect in that she was unable to attend personal care independently	• Confusion • Poor concentration • Memory issues

Given the myriad of symptoms, her diagnosis was revised over the years from Bipolar Affective Disorder to Schizoaffective disorder, and finally to Schizophrenia.

Her past medical history includes:

- Recurrent urinary tract infections
- Urinary retention
- Hypothyroidism
- Irritable bowel syndrome

A brief overview of her admission history indicates that her first hospital admission was at the age of 16 when she was admitted for three months. During this admission, a diagnosis of 'manic depression with schizophrenic tendencies' was made. She was managed with antipsychotic medications and her mental state improved. She was discharged under the care of the community mental health team (CMHT). She managed to achieve relative stability in her mental health for several years.

She was hospitalised again aged 21 for four months due to a relapse in her mental state and commenced on lithium during this admission. After achieving stability in her mental health she was transferred to a rehabilitation unit where she spent a further two years. Following this, she was discharged to an independent accommodation under the care of the CMHT, and her symptoms were managed in the community successfully for almost 22 years.

In April 2013, she was admitted to a General Hospital after acquiring a urinary tract infection associated with a relapse in her mental state characterised by second person auditory hallucinations of the devil, persecutory delusions that staff were trying to harm her, and confusion. As soon as she was deemed medically fit, she was transferred to a psychiatric assessment unit as her psychiatric symptoms persisted. Her medications were reviewed and optimised resulting in an improvement in terms of her mental state. She was discharged eight weeks later under the support of the crisis team and CMHT.

She was re-admitted in 2014 for a period of two and a half years due to a relapse in her mental state characterised by auditory hallucinations of the devil, persecutory delusions of people trying to harm her, nihilistic delusion, delusions of guilt in that she felt she committed a crime, severe depression, and confusion. Her mother passed away during this period. She was trialled on several antipsychotic medications including Aripiprazole, Olanzapine and Amisulpiride, however, there were minimal benefits. She was given a course of twelve ECT sessions and two further ECT sessions as an augmentation to her psychotropic regime. This achieved a resolution in her symptoms, however, ECT was terminated as she reported memory difficulties. As she previously responded minimally to non-clozapine antipsychotics, clozapine was initiated. She responded well to clozapine and achieved stability in her mental

health. Her functionality declined during the admission process and as a result, she was discharged to 24-hour supported accommodation. During this admission, she was also referred to the memory team due to memory difficulties, however, she did not engage in the memory assessments. Computed tomography of the head was undertaken on 24th February 2016, delineating no structural abnormalities. Magnetic resonance imaging of the head was undertaken on 10th January 2017, in which mild cortical atrophy was noted.

In April 2017 she was admitted to a General Hospital due to rigidity and fever. Bloods delineated Creatine Kinase of ≈ 10,000 U/L. Her medication at the time of admission included Amisulpiride PO (per os) 200mg twice daily, Clozapine PO 100mg in the morning and 200mg in the evening, Lithium PO 400mg once daily, Citalopram PO 20mg once daily and Promethazine PO 25mg in the evening. The treating team suspected Neuroleptic Malignant Syndrome (NMS) in the context of psychotropic agents, which resulted in the discontinuation of her medications.

Whilst receiving supportive treatment for NMS, she also developed Pulmonary Embolism, which was managed. After her physical health needs were addressed, she became non-communicative with reduced mobility and poor oral intake, which was not a typical presentation. She received seven sessions of ECT as it was perceived to be a safer option to manage the above symptoms. This resulted in a positive transient response. The plan was to continue treating her with ECT, however, this was not materialised as she objected to this intervention as she felt she was experiencing 'brain damage'. Therefore, a psychotropic re-challenge was undertaken, including Olanzapine PO, Flupenthixol long-acting intramuscular injection, Fluoxetine PO and Gabapentin PO. She achieved some degree of stability in her mental health which resulted in periods of leave from the psychiatric unit to a care home.

Whilst on leave she developed tachycardia, tachyponea, confusion and pyrexia. Investigations revealed Urosepsis and Acute Kidney Injury. These conditions were managed with medical interventions. Unfortunately, during her stay at the General Hospital, she developed two episodes of nosocomial pneumonia. During this time her mental state deteriorated further, prompting a review of her mental health medications. All of her psychotropic agents were discontinued and she was trailed on Aripiprazole PO 5mg once daily. A few days later she spiked a temperature along with rigidity. It was unclear if this was secondary to an infection or reaction to Aripiprazole. Given her previous history of NMS, Aripiprazole was discontinued. She continued to deteriorate in the context of her mental

health and physical health. She was referred to a palliative team as her demise was expected. She was discharged to a hospice in July 2018.

Surprisingly, whilst at the hospice, she achieved some degree of recovery in terms of her overall well-being. With regards to medications, she was primarily managed with sodium valproate and long-term benzodiazepines.

In January 2019, she had a further prolonged admission spanning almost two years. She was admitted to a psychiatric ward as she experienced the following:

- Auditory hallucinations of the devil
- Persecutory beliefs of being targeted by the devil
- Sexual disinhibition in that she was taking off her clothes, masturbating, and saying she was having "sex with the devil“
- Behavioural issues in that she was assaulting residents, head banging, and was difficult to manage in the care home requiring one-to-one or two-to-one care

Shortly after her admission, she was transferred to a General Hospital as she became acutely dehydrated and bloods delineated hypernatremia. Whilst her physical health needs were being managed, her mental state deteriorated prompting twelve sessions of ECT. This resulted in a relative improvement in her mental state.

Once medically cleared, she was transferred back to a psychiatric inpatient ward. Shortly after receiving a course of ECT, she required an additional six sessions of ECT, which resulted in a resolution of her symptoms. The treating team evaluated that in order to maintain stability in her mental health, maintenance ECT, would be a key component along with long-term benzodiazepines and sodium valproate in favour of neuroleptic agents.

Following an improvement in her mental state, she was discharged to a care home with support from the CMHT. She was given ECT regularly at an interval of 7 -14 days in an inpatient setting and monthly whilst in the community.

In June 2021, she refused ECT which resulted in a deterioration of her mental health manifested by:

- Hitting her head and assaulting other residents
- Poor oral intake

- Responding to unseen stimuli
- Incomprehensible speech
- She wrote down some words on paper such as ‘drink water’ and ‘not a Christian’ which were out of context to the questions asked, suggesting possible thought disorder
- Delusional beliefs that she was evil and writing letters to the devil
- Shouting and running aimlessly around the home and invading other residents' personal space
- Poor sleep

She was admitted to a psychiatric unit for approximately six months. ECT was recommenced during this admission resulting in an improvement in her mental state. She received monthly maintenance ECT and was discharged to a care home with the support of the CMHT.

Post-discharge, her mental state deteriorated again, and the ECT frequency was changed from monthly to weekly initially and then fortnightly. This resulted in an improvement in her mental state although some residual psychotic symptoms persisted, namely persecutory beliefs about being poisoned, delusions of guilt about committing a crime, and second person auditory hallucination of the devil. These were, however, to a reduced intensity. A re-challenge of antipsychotics was agreed with the wider team, given her residual symptoms, and low dose Quetiapine PO was commenced in February 2023.

She is currently being managed with Quetiapine PO 50mg twice daily, Sodium valproate PO 1500mg in the evening, and Lorazepam PO a maximum of 1mg in 24 hours as required. Additionally, she is receiving four weekly maintenance ECT.

Discussion

Schizophrenia can be a debilitating illness that significantly affects one's quality of life. Medications and psychosocial interventions are currently the mainstays of treatment, however, some instances go beyond medications. Electroconvulsive therapy (ECT) is one such treatment that has been used in the management of schizophrenia. In terms of its efficacy, a Cochrane review undertaken by Tharyan & Adams 2005 suggested that “ECT, combined with treatment with antipsychotic drugs, may be considered an option for people with schizophrenia, particularly when rapid global improvement and reduction of symptoms

is desired" [11]. With that said, the evidence base is far from robust resulting in NICE not allowing the general use of ECT in the management of schizophrenia [7].

Maintenance ECT refers to a longer-term continuation of ECT treatment following an initial successful course [2]. The evidence base for maintenance ECT is even weaker, primarily consisting of data from case reports and one retrospective case series [6].

In the case described above, the patient was trialled on several psychotropic medications. Initially, these brought a resolution to her symptoms and she attained stability for several years. In the later years, her psychotropic regimes were frequently changed as they were either ineffective or she developed side effects including dystonic reactions. She received an acute course of ECT as an augmentation to non-clozapine second-generation antipsychotics which brought prompt improvement in her mental state, however, it was terminated as she reported memory difficulties.

Some years later, she developed NMS, and all her psychotropic medications were discontinued. She underwent a neuroleptic re-challenge and developed NMS. As a result, she was commenced on maintenance ECT which she has received for almost 5 years. Overlooking ECT in her case would have been unreasonable as there were no suitable alternative options. ECT appeared to be an efficacious treatment modality for her, resulting in a significant improvement in her overall well-being, characterised by a marked improvement in mental health along with an improvement in her quality of life.

Conclusion

In the case we presented maintenance ECT proved to be an effective treatment modality both in terms of symptom control and quality of life. Over the years, various psychotropic agents were commenced, with the hope of improving the patient's health, but these were met with several barriers including suboptimal treatment response, significant side effects such as dystonic reactions, and two episodes of potentially life-threatening Neuroleptic Malignant syndrome. This left maintenance ECT as the only pragmatic option available to manage her severe debilitating symptoms.

She is currently being managed with four weekly maintenance ECT. We have also gradually reintroduced low-dose Quetiapine PO in February 2023, given her residual psychotic symptoms. Her current psychotropic regime is comprised of Quetiapine PO 50mg twice daily,

Sodium valproate PO 1500mg in the evening, and, as required, Lorazepam PO maximum of 1mg in 24 hours.

This case highlights that although the evidence base for maintenance ECT is far from copious, it should not be overlooked as an option, particularly when other treatment modalities are unsafe or associated with significant risk. With regards to further advancements, future research, especially randomised controlled trials, reviewing the efficacy of maintenance ECT in schizophrenia is highly recommended.

References

[1] Chanpattana, W. and Sackeïm, H.A. (2010b) 'Electroconvulsive therapy in Treatment-Resistant Schizophrenia,' *Journal of ECT*, 26(4), pp. 289–298.

[2] Ferrier, I.N. and Waite, J. (2019c) *The ECT handbook*. Cambridge University Press.

[3] Fink, M. (1979) *Convulsive therapy : theory and practice.* Raven Press.

[4] Janicak, P.G. *et al.* (1985b) 'Efficacy of ECT: a meta-analysis,' *American Journal of Psychiatry*, 142(3), pp. 297- 302.

[5] Kane, J.M. *et al.* (2019b) 'Clinical Guidance on the identification and Management of Treatment-Resistant Schizophrenia,' *The Journal of Clinical Psychiatry*, 80(2).

[6] Lévy-Rueff, M. *et al.* (2008) 'Place de l'électroconvulsivothérapie de maintenance dans le traitement des schizophrénies résistantes,' [Maintenance electroconvulsive therapy and treatment of refractory schizophrenia] *L'Encéphale*, 34(5), pp. 526–533.

[7] NICE (2003b) *1 Guidance | Guidance on the use of electroconvulsive therapy | Guidance | NICE*. https://www.nice.org.uk/guidance/ta59/chapter/1-Guidance.

[8] NICE (2014) *Recommendations | Psychosis and schizophrenia in adults: prevention and management | Guidance | NICE*. https://www.nice.org.uk/guidance/cg178/chapter/Recommendations#subsequent-acute-episodes-of-psychosis-or-schizophrenia-and-referral-in-crisis-2.

[9] *Schizophrenia | Royal College of Psychiatrists* (2015). https://www.rcpsych.ac.uk/mental-health/mental-illnesses-and-mental-health-problems/schizophrenia.

[10] *Schizophrenia - Symptoms and causes - Mayo Clinic* (2020b). https://www.mayoclinic.org/diseases-conditions/schizophrenia/symptoms-causes/syc-20354443.

[11] Tharyan, P. and Adams, C.E. (2005) 'Electroconvulsive therapy for schizophrenia,' *The Cochrane Library* [Preprint].

[12] Verwijk, E. *et al.* (2017) *Dokter, komt mijn geheugen terug? Elektroconvulsietherapie en cognitieve bijwerkingen in de praktijk*. [Doctor, will I get my memory back? Electroconvulsive therapy and cognitive side-effects in daily practice]. *Tijdschrift voor*