Electroconvulsive therapy: A clinical case study and review

Introduction

Electroconvulsive therapy (ECT) is deemed one of the most effective treatments for alleviating symptoms in individuals diagnosed with severe depression (Mills & Elwood, 2017), yet it remains one of the most controversial psychiatric treatments in contemporary mental health nursing practice (Torrance, 2015). As such, its use and efficacy continues to be questioned (Read et al, 2019). ECT consists of passing a calculated current through the brain via electrodes placed on the head, either bilaterally (both sides) or right unilaterally (one side), to stimulate the brain and elicit a therapeutic tonic-clonic seizure (Royal College of Psychiatrists, 2020). This article will utilise a case study* to critically analyse and evaluate the application of ECT, by referring to current policy and national guidelines to ensure that it is delivered safely, whilst also maintaining recovery focused, person-centred care.

*This case study is based on an amalgamation of several patients to ensure patient anonymity and confidentiality, in accordance with the Nursing and Midwifery Council's code of conduct, (NMC, 2018).

Key words

Electroconvulsive therapy, case study, depression, recovery, person-centred care.

Case study

Albert, a 66-year-old male, was initially admitted to a medical ward following a serious attempt to take his own life. This resulted in him sustaining several serious physical injuries. After receiving emergency surgery for these injuries Albert was transferred, and admitted as an informal patient, to an older adult inpatient mental health ward that accommodates individuals with additional physical or mental health needs (Joint Commissioning Panel for Mental Health, 2013).

Albert had a previous diagnosis of recurrent depressive disorder, a mood disorder typified by remitting episodes of low mood, increased fatigue, and decreased levels of energy, interest, and

enjoyment (World Health Organization, 2018). Other symptoms of this disorder include decreased appetite, bleak and pessimistic views of the future, thoughts of unworthiness and ideas or acts of self-harm (WHO, 2018). To reach such a diagnosis, which can vary in severity, a number of the above symptoms must be present most of the days and times in the preceding two weeks (WHO, 2018). Thus, Albert was spending long periods of time in bed, had minimal interaction with staff or peers, regularly stated he "just wants to die", frequently declined diet and fluids, was resistive upon personal care interventions and he would often attempt to self-harm by dropping himself onto the floor which resulted in him sustaining further physical injuries. In view of this, for his own safety, Albert was subsequently detained under Section 3 of the Mental Health Act (MHA, 1983, amended 2007). He was also nursed on continuous, level 3 observations, due to his risk of falling and self-harm[1] (Mental Welfare Commission, 2015).

Engagement, assessment & formulation

As part of the assessment process, a mental state examination was completed initially to assess Albert's needs. This framework provides a structured way of describing and observing an individual's current mental state (Soltan & Girguis, 2017) at a specific point in time, hence it can be objective (Grossman & Irwin, 2016). However, as Voss & Das (2020) argue, it can also be as subjective tool, and is thus open to interpretation. Albert was also asked to complete a DASS-21 questionnaire (Lovibond & Lovibond, 1995). This objective measuring tool consists of 3 self-report scales to identify, rate, and measure one's own perception of their depression, anxiety, and stress (Ronk et al, 2013). Due to Albert's presentation this took several attempts to complete, as he was often unable or unwilling to engage or answer more than a couple of questions at a time. Combining these with a review of Albert's past psychiatric history enabled accurate diagnosis and aided in completing the formulation.

Due to the number and severity of symptoms present, Albert was subsequently diagnosed with recurrent depressive disorder; current episode severe without psychotic symptoms (WHO,

[1] Enhanced observations are interventions that are used to provide increased safety for individuals when they pose a risk of harm to themselves or others (Mental Welfare Commission, 2015). These include level 1 general observations, level 2 intermittent observations, level 3 within eyesight, and level 4 within arm's length (SNMAC DoH, 1999).

2018). This diagnosis informs which care pathway is adopted (NICE - pathway for depression) (National Institute for Health & Care Excellence, 2020b). Care pathways establish standardisation of care, ensure best practice, and are evidence based (NICE, 2020b). However, some argue this is not a person-centred approach to treatment as standardisation of care may restrict which interventions can be utilised (Macneil et al, 2012). In view of this, clinical case formulation was also completed. This advocates for working together with patients to explore individualized aspects of their current presentation to help determine the most appropriate intervention (Macneil et al, 2012). This also allows deeper insight into patients' needs, enables identification of personal strengths, and thus results in a more person-centred treatment approach with potentially enhanced clinical outcomes (Houghton & Jones, 2016). Upon completion of this, and following further discussions with Albert, his family members, and the wider multidisciplinary team, it was agreed that Albert would be prescribed a course of ECT.

Reasons for the choice of ECT and consideration of alternate treatment options

NICE (2009b) recommend ECT only for severe and moderate depression when other alternatives, including medication and psychotherapy, have been ineffective. According to the stepped care model (NICE, 2009b), individuals with severe and complex depression should be offered the following interventions: medication, combined treatments, ECT or high intensity treatments, including behavioural activation (BA), cognitive behavioural therapy (CBT) or Interpersonal therapy (IPT). These recommendations are based on best-available evidence and for these high intensity treatments NICE (2009b) recommends 2 sessions per week initially, with a full course consisting of 16 to 20 sessions over approximately 3 to 4 months. However, as these interventions require active engagement and participation for long periods of time (NICE, 2009b), and with Albert regularly being unwilling to do so, these approaches were thus deemed inappropriate.

Adopting a pharmacological approach to Albert's care was also deemed unsuitable as he regularly refused prescribed medication. Moreover, all possible side effects of medication had to be considered due to Albert's frailty resulting from his physical injuries. Stek et al, (2003) state ECT could be a superior alternative as the frailty of elderly individuals may hinder the safety and effectiveness of pharmacotherapy. In addition, several studies exploring severe,

treatment-resistant depression have found ECT to be more successful than pharmacotherapy in alleviating symptoms (UK ECT Review Group, 2003; Kellner et al., 2012; Lin et al, 2018).

ECT was therefore identified as an appropriate treatment option for Albert. ECT is recommended by NICE (2009b) for individuals diagnosed with complex and severe depression if all other treatment options have been unsuccessful, a rapid response is required, or if the individual's situation is deemed life threatening. Considering Albert's recent suicide attempt, acts of self-harm, and continued suicidal ideation it was clear that an urgent response was required. Moreover, Albert's past mental health care records showed that he had previously undergone four courses of ECT throughout his life, that these had been effective, and this was his preferred treatment option. As stated by NHS England (2017), it is essential that patients, deemed to have the capacity to do so, are continuously involved in decision making about all interventions and treatments they receive.

The ECT procedure

In contemporary nursing practice, ECT is conducted whilst the patient is under a brief general anaesthetic and they are also prescribed a muscle relaxant to prevent muscle spasms (Royal College of Psychiatrists, 2017), however in past times this was not always the case and no anaesthetic or relaxant were used (Mills & Elwood, 2017). A small electrical current is administered in millicoulombs and the dose required to induce a therapeutic seizure varies between individuals (Andrade, 2010), for Albert this was 1.5 times his seizure threshold. The entire procedure takes approximately 30 minutes, during which electrical brain activity and vital signs are monitored throughout (Royal College of Psychiatrists, 2020). Six to twelve sessions are typically required to achieve remission (NICE, 2009a).

Although, it should be noted that one of the ongoing controversies surrounding the use of ECT relates to the fact that, despite several decades of research, how it alleviates symptoms of depression remains unknown (Bolwig, 2011). Various theories have been proposed such as the generalized seizure theory which postulates that generalized seizures are essential for the therapeutic efficacy of ECT (Bolwig, 2011), whereas NICE (2009a) enounce the most prevalent hypothesis is that ECT alters post-synaptic responses in neurotransmitters within the

central nervous system. Yet, despite this lack of clarity, ECT continues to be cited as a safe and effective treatment (Mills & Elwood, 2017; Semvoska & McLoughlin, 2010), although future research into its mechanism of function is required (NICE, 2009a). However, it must be acknowledged that this is not the only mental health treatment that is used based upon a hypothesis as many pharmacological and therapeutic interventions are used without complete clarification on their mechanism of function (Roberts, 2019).

Planning, implementation & delivery

Prior to the commencement of ECT, as well a thorough mental health assessment, individuals are also required to undergo a full physical health examination, including routine blood tests and an electrocardiogram (ECG) to assess heart health prior to receiving the anaesthetic (Royal College of Psychiatrists, 2017). Consideration must also be taken regarding co-morbidities and additional health needs (Royal College of Psychiatrists, 2017). Therefore, Albert was reviewed by his physiotherapists to ensure he was physically able to undergo treatment. A discussion was also had with Albert and his family members regarding the benefits and risks associated with ECT, which include cognitive impairment (NICE, 2009a) and mortality, which although extremely rare can occur in approximately 2 out of 100,000 individuals (Torring et al, 2017). Such discussions are essential as they enabled Albert to make an informed decision about his treatment, ensured patient autonomy and are a crucial element of person-centred care (Cheng & Lin, 2017). However, these discussions do not always take place as some clinicians within the NHS still adopt the traditional approach of expert making decisions for, rather than with, the patients (Coulter & Collins, 2011). Often such an approach is linked to time constraints to have such discussions with family members, due to the urgency and nature of the treatment (Yahanda & Mozersky, 2020).

Upon completion of this, Albert began ECT which was prescribed twice weekly. This has been found to provide the best balance between therapeutic outcome and adverse effects (Gangadhar & Thirthalli, 2010). Albert received bilateral ECT which NICE (2009a) cite as the most efficacious in producing antidepressant effects, yet it is also associated with increased risk of cognitive impairment. NICE (2009a) make evidence-based recommendations for health care in England, however their evidence on ECT is primarily based on research findings from a systematic review conducted in 2005 (Greenhalgh et al, 2005). This conflicts with the findings

of two recent systematic reviews and meta-analysis of several randomized controlled trials which found no significant difference in the efficacy between bifrontal, bilateral or unilateral electrode placement in treating severe depression, with unilateral being found to have cognitive advantages (Dunne & McLoughlin, 2012; Kolshus et al, 2017). Although, one study analysed concluded that bilateral electrode placement alleviated symptoms quicker (Kellner et al, 2010). This could therefore be deemed appropriate due to Albert's current presentation, however, as only a small sample size of 120 individuals was used, wider generalizations cannot be drawn (Kellner et al, 2010). Nevertheless, such research findings imply an urgent review of all available evidence is required, especially since NICE, which ultimately guides clinical decisions in practice, last updated their evidence on electrode placement efficacy over a decade ago.

Issues with implementation

ECT can cause many side effects including headaches, nausea, confusion, and muscle aches, but the greatest restriction of its use regards its impact on short- and long-term memory as ECT may cause anterograde amnesia (recent events) and/or retrograde amnesia (past events) (Royal College of Psychiatrists, 2017). Such side effects can be extremely detrimental and may negate any benefit gained from the ECT (Martin et al, 2013).

To explore this, Semvoska & McLoughlin (2010) conducted a systematic review and meta-analysis of 84 studies, using standardized tests, to examine the impact of cognitive side effects arising from ECT. Results from this study revealed significant short-term deficits 0-3 days post treatment, however, no impairment was evident 15 days post treatment with levels recovering to those seen in pretreatment. It was concluded that ECT causes short-term, cognitive abnormalities. However, this review is not without limitations as it did not explore retrograde amnesia and the use of standardized tests did not account for individuals' subjective experiences, evidence of which implies that such deficits may be more long term (Brakemeier et al, 2011).

Semvoska & McLoughlins' (2010) findings are, however, supported by a longitudinal case-controlled study conducted by Nuninga et al, (2018) who explored the effects of bilateral ECT

on cognition. In this study 48 patients were assessed via a battery of cognitive tests pretreatment, after 10 treatments, and 6 months post treatment. They found that verbal fluency, memory, and learning were impaired in the short-term, but these recovered 6 months later. It was concluded that bilateral ECT causes short-term cognitive deficits. There are, however, several issues with this study including lack of assessment of autobiographical memory, small sample size, and a high attrition rate as 40% of patients withdrew prior to follow up (Nuninja et al, 2018). Nevertheless, current evidence suggests bilateral ECT does not cause any long-term cognitive deficits although future qualitative studies exploring the effects of ECT on retrograde memory, conducted beyond 6-months post-treatment, with larger sample sizes, would further enhance knowledge of this.

Unfortunately, Albert did experience such short-term cognitive deficits which became evident upon completion of his first treatment. A clear controversial topic with regards to ECT (Read, 2020). Albert had issues orienting to time and place in the days that followed his treatment. This was clarified using patient orientation and cognitive assessments that are completed following each ECT session, in accordance with best practice guidelines and ECTAS standards (Royal College of Psychiatrists, 2020b). NICE (2009b) recommends that if cognitive impairment becomes evident, treatment modality and dose must be considered, based upon the balance of risks and benefits. Although Albert's cognitive deficits appeared to be short-term, it eventually impacted upon his ability to demonstrate that he had the capacity to consent to treatment, hence the treatment intensity was reduced, and enhanced observations remained in place.

Capacity & Consent

Obtaining informed consent prior to the commencement of treatment is standard in contemporary nursing practice (Torrance, 2015). Prior to initiation of treatment, Albert was provided with information about ECT in both written and verbal form, in formats that were easily understood (Mental Capacity Act, 2005). In accordance with the MCA (2005), prior to each ECT session, it was also ensured that Albert understood relevant information about the treatment, could retain this, use this information to make an autonomous decision, and communicate this via any means necessary. Albert was initially deemed to have capacity to consent to treatment, and a T4 form was completed by his responsible clinician to certify this.

ECT was then administered under Section 58A of the Mental Health Act (1983, amended 2007).

However, after receiving six sessions of ECT, Albert was unable to demonstrate capacity to consent to further treatment due to the cognitive side effects not subsiding between treatments. As a result of this ECT was not administered. Following subsequent discussion with Albert, his family and the wider multidisciplinary team, it was agreed that his treatment would be reduced to once weekly, with the view that this would allow him more time to recover between each session. Subsequent re-assessment of capacity was conducted the following week. He was deemed to have the capacity to consent to treatment again and this was subsequently recommenced. Therefore, extreme care is required as administering ECT to a patient who does not have the capacity to consent to treatment, without the correct documentation in place, has huge ethical and legal implications (MHA, 1983, amended 2007; NICE, 2020a).

Recovery focused care

Gelenberg et al, (2010) state that the aim of treatment for those diagnosed with major depressive disorder should centre upon not just achieving resolution of symptoms and remission from the current episode, but also easing functional impairments and improving quality of life. Evidence of this could be seen in Alberts presentation as in the weeks following ECT, Albert became concordant with his prescribed physical health medications, he began spending less time isolating in his room and he would actively seek out staff assistance to help him attend to his personal care and dressing needs. He also began to eat and drink regularly, so much so that he was taken off a diet and fluid chart and his enhanced observations were also reduced.

Moreover, Albert began to actively engage with staff and peers, he participated in ward activities and he became optimistic about the future, stating he was looking forward to moving into new supported accommodation located nearer to his children as this would enable him to spend more time with them. ECT therefore promoted Albert's recovery. It offered a treatment option when all others were exhausted, when Albert's quality of life was minimal and risk of suicide high. In addition, whilst Albert was not yet considered to be in remission, ECT has

been found to have high remission rates and a quick response to treatment in people with depression in the older population (Damm et al, 2010; Spaans et al, 2015). Remission rates of 48% have also been found in those with treatment resistant depression (Heijnen et al, 2010).

Outcome, evaluation, and future plan

Following twelve sessions of ECT a further mental state examination was completed, in addition to a DASS-21 questionnaire (Lovibond & Lovibond, 1995). Both showed Albert had experienced a marked reduction in symptoms of depression, anxiety, and stress, thus implying that the ECT had supported Albert's recovery in gaining an increased quality of life. This contrasts with a recent study which concluded that there is no evidence that ECT is an effective treatment option for depression (Read et al, 2019). This study has also subsequently led to the publication of articles with titles such as "Ban Cuckoo's Nest electric shock therapy for depression" (Halle & Adams, 2020), thus further increasing the stigma associated with receiving ECT (Griffiths & O'Neill-Kerr, 2019).

Whilst Alberts treatment remained ongoing, his recovery was discussed in his discharge planning meeting where it was agreed that upon completion of his current course of ECT, he would be prescribed maintenance ECT. Current guidance on this longer-term treatment option is conflicting as on one hand (NICE 2009a) acknowledges that ECT is given less commonly either fortnightly or monthly as a continuation or maintenance therapy to prevent relapse. However, NICE (2009a) also states that ECT should not be used as a maintenance therapy in depressive illness. Many recent studies have been conducted which advocate its use in relapse prevention (Brown et al, 2014; Elias et al, 2014; O'Connor et al, 2010; Nordenskjold et al, 2013; van Schaik et al, 2012), with others also finding that maintenance ECT is not linked to adverse cognitive outcomes (Smith et al, 2010; Brown et al, 2014; Luccarelli et al, 2020). A review of such available evidence could therefore clarify the NICE stance on this as maintenance ECT could be an effective way of ensuring that Albert maintains a good level of recovery and could potentially reduce the need for any future inpatient stays.

Conclusion

To conclude, ECT offered a lifeline to Albert when he had lost all hope of recovery. ECT lifted Albert from the depths of depression and enabled him to see a more positive future for himself. Whilst Albert was still on the road to recovery, his symptoms were evidently less severe. However, this article has highlighted several issues, including conflicting evidence regarding electrode placement efficacy (Dunne & McLoughlin, 2012; Kolshus et al, 2017; NICE, 2009a; NICE 2009b) and the impact that these have upon cognition (NICE, 2009a; NICE, 2009b; Nuninga et al, 2018; Semvoska & McLoughlin, 2010). In addition to perceived stigma associated with the intervention (Griffiths & O'Neill-Kerr, 2019; Halle & Adams, 2020). It has also highlighted that the side effects of the intervention can also impact upon one's ability to consent to receive such a treatment and extreme care must be taken regarding this. Moreover, the lack of updated evidence considered by NICE (2009a; 2009b), which ultimately guides clinical decisions in England, has further been brought into question due to their lack of clarity regarding the use of ECT as a maintenance and relapse prevention treatment for depression. Thus, whilst ECT was proving to be an effective treatment for Albert, further research is needed to ensure that patients are receiving the best possible care, with minimal possible cognitive side effects.

Take home points

- ECT can be a life saving treatment option for older adults.
- It is important to consider both ethical and legal implications, particularly when side effects are experienced.
- Shared decision making between clinician, patient, and family is crucial when considering such a treatment.
- An updated version of NICE guidance would be beneficial for clinicians, especially regarding electrode placement efficacy and ECTs use in maintenance and relapse prevention.
- Further research is needed to ensure that patients are receiving the best possible care, with minimal cognitive side effects.

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