REVISTA NEUROCIÊNCIAS

Electroconvulsive therapy in the management of suicidal risk

Eletroconvulsoterapia no manejo do risco suicida

Terapia electroconvulsiva en el manejo del riesgo suicida

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Resumo

Introdução. A eletroconvulsoterapia (ECT) é um tratamento capaz de promover rápida melhora em uma variedade de transtornos mentais. **Objetivo.** Sendo o suicídio a principal causa de morte associada a transtornos psiquiátricos, esta revisão tem como objetivo analisar a relação risco/benefício da ECT no manejo do risco suicida. **Método.** Foi realizada busca sistemática de artigos publicados no PubMed entre 2015 e 2020, com os descritores "eletroconvulsive therapy" e "suicide". Os critérios de exclusão - repetidos, indisponíveis, inéditos, não relacionados ao tema, artigos de revisão, cartas e comentários - foram aplicados aos 143 artigos encontrados. **Resultados.** Foram selecionados 19 estudos, em sua maioria observacionais. O uso da ECT foi avaliado em diversos transtornos psiquiátricos, com predomínio de transtornos depressivos (47,36%). A redução do risco suicida foi direta ou secundária à melhora do quadro clínico a partir do tratamento com ECT em 89,47% dos artigos. Quanto aos efeitos adversos da ECT, destacou-se o comprometimento transitório da memória anterógrada. **Conclusão.** A ECT apresenta-se como uma potente estratégia terapêutica no manejo do risco suicida, mas o acompanhamento e a atenção à saúde devem ser contínuos, pois, principalmente no primeiro ano após a remissão dos sintomas, existe o risco de recaídas.

Unitermos. Eletroconvulsoterapia, Suicídio, Depressão

Abstract

Introduction. Electroconvulsive therapy (ECT) is a treatment capable of promoting rapid improvement in a variety of mental disorders. **Objective.** Since suicide is the leading cause of death associated with psychiatric disorders, this review aims to analyze the risk/benefit ratio of ECT in the management of suicidal risk. **Method.** A systematic search was performed for articles published in PubMed between 2015 and 2020, with the descriptors "electroconvulsive therapy" and "suicide". Exclusion criteria - repeated, unavailable, unpublished, unrelated to the topic, review articles, letters and comments - were applied to the 143 articles found. **Result:** 19 studies were selected, mostly observational. The use of ECT was evaluated in several psychiatric disorders, with a predominance of depressive disorders (47.36%). The reduction of the suicidal risk was direct or secondary to the improvement of the clinical picture from the treatment with ECT in 89.47% of the articles. As for the adverse effects of ECT, the transient impairment of anterograde memory was highlighted. **Conclusion.** ECT presents itself as a potent therapeutic strategy in the management of suicidal risk, but the follow-up and health care must be continuous, because, especially in the first year after the remission of symptoms, there is the risk of relapses.

Keywords. Electroconvulsive Therapy, Suicide, Depression

Resumen

Introduccíon. La Terapia Electroconvulsiva (TEC) es un tratamiento capaz de promover rápidamente la mejoría en una variedad de trastornos mentales. **Objetivo.** Dado que el suicidio es la principal causa de muerte asociada a los trastornos psiquiátricos, esta revisión tiene como objetivo analizar la relación riesgo/beneficio de la TEC en el manejo del riesgo suicida. **Método.** Se realizó una búsqueda sistemática de artículos publicados en PubMed entre 2015 y 2020, donde se describía "eletroconvulsive therapy" y "suicide". Los criterios de exclusión -repetidos, no disponibles, inéditos, no relacionados con el tema, artículos de revisión, cartas y comentarios- fueron aplicados a los 143 artículos encontrados. **Resultado.** Se seleccionaron diecinueve estudios, la mayoría de los cuales eran observacionales. El uso de la TEC para evaluar diversos trastornos psiquiátricos, con predominio de los trastornos depresivos (47,36%). La reducción del riesgo suicida fue directa o secundaria a la mejoría del cuadro clínico a partir del tratamiento con TEC en el 89,47% de los artículos. En cuanto a los efectos adversos de la TEC, se destacó el deterioro transitorio de la memoria anterógrada. **Conclusión.** La TEC se presenta como una potente estrategia terapéutica en el manejo del riesgo suicida, pero el seguimiento y la atención sanitaria deben ser continuos, ya que, especialmente en el primer año tras la remisión de los síntomas, existe el riesgo de recaídas.
Palabras clave. Terapia electroconvulsiva, Suicidio, Depresión

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INTRODUCTION

Electroconvulsive therapy (ECT) is a useful treatment in reducing depressive symptoms and in rescuing remote memories for certain patients with mental disorders[1]. Applied since the 1930s, in the first 30 years without anesthesia, it was developed and adapted over time and currently requires consent and agreement with procedures, as well as involving the use of anesthetics and muscle relaxants for greater safety and acceptance[1,2].

The frequency of sessions and the duration of treatment depend on the pathology and the patient's response rate, and the placement of the electrodes can be unilateral or bilateral, with bilateral placement appearing to be more effective at lower doses in reducing depressive symptoms, however, can lead to a transient impairment of anterograde

memory, reduced with unilateral positioning[1]. The decision for therapy is influenced by side effects, costs and hospital guidelines; the grading of risk depends on the occurrence of comorbidities and the patient's need, and the effectiveness of treatment, after remission of symptoms with ECT, can be maintained with the use of antidepressants or lithium[1,3].

Despite being relatively safe and with little long-term negative neuropsychological influence, ECT is considered an invasive treatment and may have cognitive impairment as side effects, mainly transient anterograde memory impairment; delirium; pain and/or musculoskeletal injury, prolonged seizures and complications associated with anesthesia, so the patient must be constantly supervised by the team, with the anesthesiologist, during the procedure[3,4].

The treatment has no absolute contraindications, but medical conditions may constitute relative contraindications[5], such as when there is extensive intracranial injury[6]. This highlights the importance of a careful clinical evaluation for a safe and potentially effective treatment.

ECT has wide therapeutic indications and can be used in various psychiatric disorders, ranging from catatonia and mood disorders, such as bipolar disorder and severe depression, as well as psychotic disorders, such as schizophrenia. The benefits of this technique include not only improving the symptoms of the underlying disorder, but also reducing suicidal ideation, often associated with these conditions[7].

It is worth highlighting the effectiveness of this treatment for depressive disorder, given that several studies point to a greater effectiveness of ECT compared to antidepressants for reducing severe depression and/or resistant to other treatments[8]. In addition, the rate of remission of depressive symptoms is approximately 87%, similar results were also found in patients with mania, while in schizophrenia, the response to treatment did not show such high rates[9]. It is also worth mentioning the use of ECT as a strategic option for the treatment of severe depressive disorders in the elderly, considering that advanced age was positively associated with ECT results[10].

Suicide is one of the leading causes of death in patients with psychiatric disorders. In this sense, the rapid improvement in the clinical picture, promoted by ECT, especially in the most severe cases of depression, contributes to a reduction in the risk of suicide[8]. Therefore, the objective of this review is to analyze the risk/benefit ratio of ECT in the management of suicidal risk.

METHOD

This is an integrative literature review, conducted in 2021. A systematic search for articles was carried out in the PubMed database, with the descriptors "*electroconvulsive therapy*" and "*suicide*", combined with the boolean operator "*and*" published between 2015-2020. The articles were selected by two independent evaluators (GGCL and LSC) and differences were resolved by consensus, including original

articles, with full text available, published in Portuguese, English or Spanish, with a theme related to the research objective. Exclusion factors were: duplicates; complete articles unavailable; unpublished; in another language; not related to the theme; reviews; letters to the editor or comments.

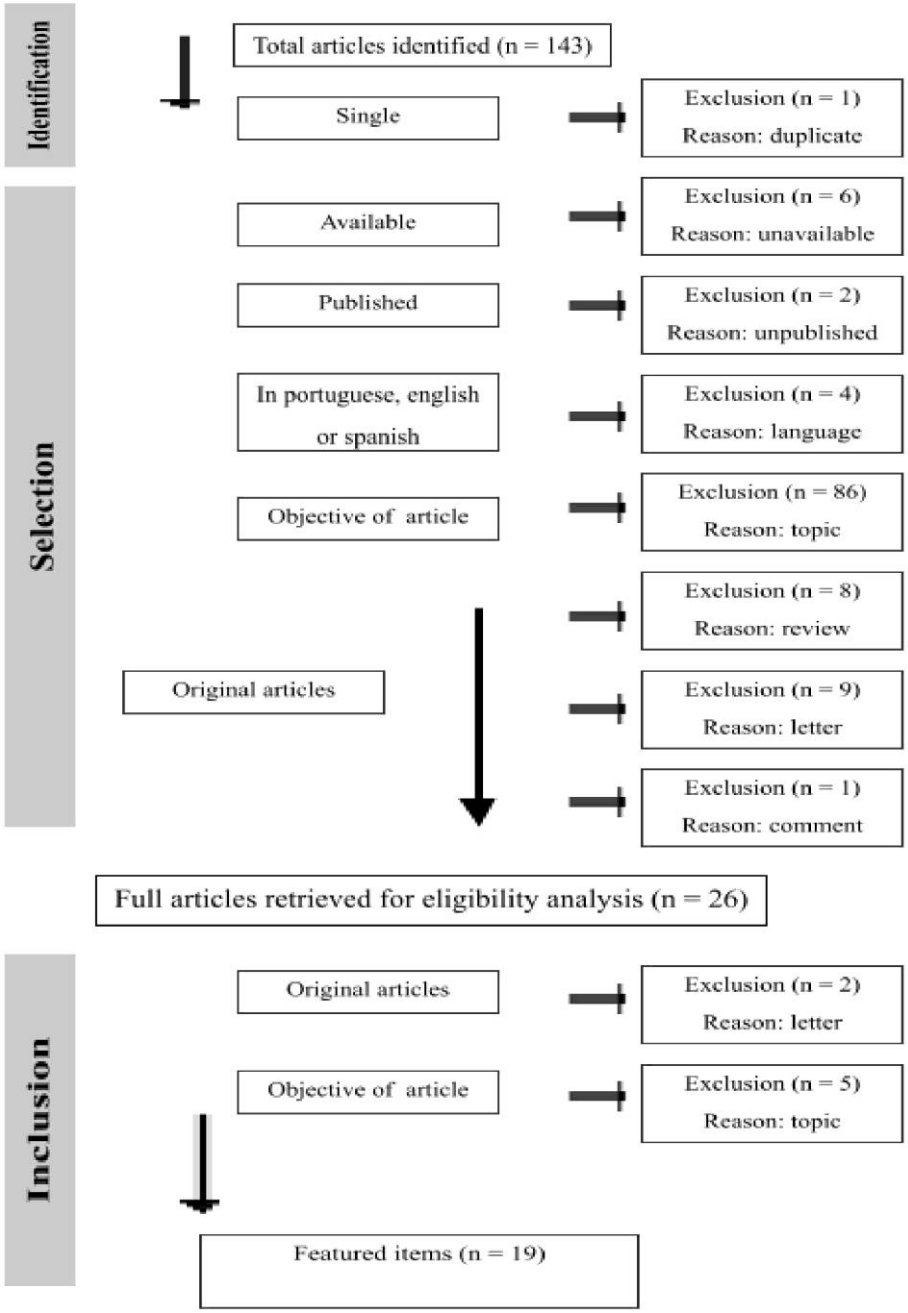
RESULTS

A total of 143 articles were found, whose abstracts were read for initial screening, leaving 26 for full reading. From them, letters to the editor and articles unrelated to the theme were excluded. Figure 1 summarizes the study selection process.

Nineteen studies were selected, most of them observational, which met the pre-established criteria for the research. Among the studies, 63.15% performed the clinical assessment of the patient using standardized scales, 31.57% used subjective assessment, and only one used both types of assessment. Regarding the study participants, 31.57% compared a group that underwent treatment with ECT with another group that did not. Studies with population stratification into suicidal and non-suicidal groups were also performed; and only with major depressive disorder associated with anorexia nervosa; seniors; female adolescents; and pregnant.

As for the underlying pathologies, 47.36% selected participants with depressive disorders, with the majority referring to major depressive disorder and refractory cases.

Figure 1. Flowchart of the systematization of the bibliographic survey.



Comorbidity with post-traumatic stress disorder, psychotic symptoms, and bipolar disorder in mixed or depressive phases have also been reported. Other clinical

conditions surveyed were: bipolar disorder; schizophrenia; refractory psychosis; acute polymorphic psychotic disorder without symptoms of schizophrenia; dementias; anorexia nervosa; body dysmorphic disorder; dissociative identity disorder. Comorbidities with alcohol abuse, major depressive disorder, personality disorders, anxiety disorders, post-traumatic stress disorder and obsessive-compulsive disorder have been described.

ECT sessions were described in 78.94% of the articles. The number of sessions performed varied between 4 and 12 in 80% of them. The placement of electrodes was described by 11 articles, and in 63.63% it was bilateral; in 18.18% right unilateral and in 18.18% unilateral and bilateral. Seven articles explained the frequency of sessions and it varied between 2 and 3 times a week in 85.71% of them and 28.57% described gradual spacing between them. Four studies described variable durations of treatment, namely: 2 weeks, 3 weeks, at least 1 month and more than 2 years. The number of sessions until the onset of symptoms improvement was described by four articles: in 75% it varied between 4 and 6 sessions and in 25% an average of 10 sessions was reported. The time between initiation of ECT treatment and symptom improvement was described by three articles and ranged from 1 to 3 weeks.

Table 1 presents the characterization of the studies and a summary of their results.

Table 1. Characterization of studies and synthesis of results.

Ref.	Type of study	Evaluation	Participants	Underlying pathology	Psychiatric comorbidities	Previous suicidal symptoms	ECT sessions	Outcomes
Liang 2018[11]	Retrospective cohort (14 years) with random sample	Standardized assessment	N=2,435 Treaties without ECT: 1,948 Treated with ECT: 487 (most severe)	Unipolar disorder or bipolar disorder	Not described	No previous attempts	No parameters	Patients treated with ECT had a 19.7% lower risk of suicide than the control group treated with psychopharmacotherapy, with the majority occurring during the 1st year of follow-up.
Jorgense 2019[12]	Cohort (12 years)	Subjective evaluation	N=92,895 Treated without ECT = 87,891 Treated with ECT = 5,004	Single or recurring depression	Personality disorder (3.25%) Alcohol abuse (8.4%)	Attempted by 7790 patients, of which 430 (5.5%) were treated with ECT	Average of 10 sessions	598 patients committed suicide, of which 17.22% were treated with ECT and 82.77% without ECT. 3,923 attempted suicide, of which 6.88% were treated with ECT and 93.11% without ECT.
Peltzman 2020[7]	Retrospective cohort (10 years)	Standardized assessment	N=73,179 Treaties without ECT = 58,369 Treated with ECT = 14,810 (most severe)	Unbounded	Non-standard	Attempt: Treated without ECT (14.48%) Treated with ECT (14.67%)	No parameters	Suicide in the year following treatment was 5.8 times more prevalent in the ECT group than in the non-ECT group.
Ahmadi 2016[8]	Retrospective cohort (8 years), non-randomized	Standardized assessment	N=22,164 Treaties without ECT: 3,393 Treaties with ECT: 92 Control group (without major depressive disorder and without post-traumatic stress disorder): 18,679	Major depressive disorder and post-traumatic stress disorder	Not described	No parameter	4-6 sessions Bilateral frontomastoid (right and left) 3x/week	The suicide rate in the ECT-treated group was 2.2% and in the control group it was 5.9%. In patients treated with ECT there was a greater reduction in the relative risk of suicide (64%) compared to the control group.
Tor 2020[13]	Naturalistic cohort (3 years)	Standardized assessment	N=113 Suicide group = 22 Non-suicidal group = 91	Schizophrenia	Not described	Ideation	No parameters	86.4% of patients in the suicidal risk group had a reduced risk.
Zhang 2016[5]	Retrospective case-control (8 years)	Standardized assessment	N=94 Treaties without ECT: 71 Treaties with ECT: 23; aged 60 or over	Insanity	Not described	High risk ideation	6-12 sessions bitemporal	56.5% of the patients had improvement in suicidal ideation and aggressive behavior and 34.8% had partial improvement. 30.4% had mild to moderate transient memory impairment.

Table 1 (cont.). Characterization of studies and synthesis of results.

Ref.	Type of study	Evaluation	Participants	Underlying pathology	Psychiatric comorbidities	Previous suicidal symptoms	ECT sessions	Outcomes
Kheirabadi 2020[4]	Randomized pilot	Standardized assessment	N=45 Treated without ECT: 30 Treated with ECT: 15	Refractory major depressive disorder	Not described	Ideation	6-9 sessions Bifrontotemporal 2-3x/week for 3 weeks Answer: between the 2nd day and the 2nd week of follow-up	Patients treated with ECT and those treated with ketamine had good tolerance and equivalent improvement in suicidal ideation. Adverse effects associated with ECT were: headache, nausea, musculoskeletal pain, and memory loss sustained up to 1 month after the end of treatment.
Shilton 2020[14]	Case series (19 years)	Standardized assessment	N=30; Female Adolescents	Anorexia Nervosa	Treatment-resistant major depressive disorder	Attempt (56.6%)	Average of 10 sessions 2X/week, spaced to 1X/week, followed by 1X/month Answer: an average of 10 sessions and 2 to 3 weeks after starting treatment	ECT treatment reduced the risk of suicide. 20% of the patients had a subjective and transient complaint of anterograde memory impairment; other symptoms were: headache (16.6%); vomiting (6.6%) and the appearance of a hypomanic episode (3.3%). Patients had a significant improvement in depressive symptoms and BMI, which was maintained after discharge. There were 53% of readmissions in the first year after ECT for worsening depression and/or suicide attempt; several years after discharge, 69.6% of the patients had no recurrence of depressive symptoms.
Kalling 2021[15]	Retrospective observation (6 years)	Standardized assessment	N=97	Acute polymorphic psychotic disorder without symptoms of schizophrenia	Not described	No parameter	No parameters	There was 1 suicide death during follow-up (1.03%). The sample achieved remission of symptoms and the recurrence rate was 20% in the first year after treatment, after which this rate dropped; 75% of patients had no recurrence at 6 years.

Table 1 (cont.). Characterization of studies and synthesis of results.

Ref.	Type of study	Evaluation	Participants	Underlying pathology	Psychiatric comorbidities	Previous suicidal symptoms	ECT sessions	Outcomes
Veltman 2019[10]	Exploratory	Standardized assessment	N=89; interned; average age: 73.1 years	Major depressive disorder, with a mean of 3.7 depressive episodes, nearly half of the sample with psychotic symptoms	Not described	Ideation	Right unilateral start 2x/week for 2 weeks If the condition worsens or does not improve: follow-up with 6 sessions bilateral Suspension if no response to 6 unilateral and 6 bilateral	Suicidal symptoms improved, but not as quickly as mood and melancholy symptoms.
Cakir 2017[16]	Observational naturalistic (1 year)	Standardized assessment	N=50	Unipolar (60%) or bipolar (40%) depressive disorder	Personality disorders (n=9), anxiety disorders (n=7), post-traumatic stress disorder (n=5) and obsessive-compulsive disorder (n=4)	Recent attempt (22%)	Average of 7 sessions bitemporal 3X/week	66% of patients relapsed within the first year after completion of ECT treatment, which led to remission of symptoms.
Ray-Griffith 2016[9]	Retrospective case series (3 years)	Subjective evaluation	N=8 Pregnant	Depression with suicidal ideation (n = 2); depression without suicidal ideation (n = 3); mood disorder with suicidal ideation (n = 1); mixed phase of bipolar disorder with suicidal ideation (n = 1) and depressed phase of bipolar disorder with suicidal ideation (n = 1).	Not described	Ideation	Average of 3.75 sessions right one-sided	6 women showed clinical improvement of depression and the 5 women who had suicidal ideation showed resolution. 1 woman had an acute episode of heart block secondary to methohexital anesthesia; 1 had acute onset of mania after ECT and 2 had preterm delivery.
Hassani 2020[2]	Case report	Subjective evaluation	N=1 25 years Male	Bipolar I disorder with manic episodes and psychotic symptoms.	Not described	Attempt	6 sessions	The patient was discharged in good general condition, with improvement in mood and psychotic symptoms.

Table 1 (cont.). Characterization of studies and synthesis of results.

Ref.	Type of study	Evaluation	Participants	Underlying pathology	Psychiatric comorbidities	Previous suicidal symptoms	ECT sessions	Outcomes
Thukral-Mahajan 2017[6]	Case report	Standardized assessment	N=1 Male Elderly	Refractory major depressive disorder, 1st episode	Not described	1 attempt	4 sessions bilateral 3x/week Segment: 8 sessions right unilateral 3x/week Answer: after 4 sessions	The patient presented subjective memory impairment after 4 ECT sessions and evolved with progressive improvement when the electrodes were changed. There was no clinically apparent neurological change during or after treatment and gains were maintained with medications.
Emmanuel 2019[17]	Case report	Standardized assessment	N=1 57 years old female	Severe and refractory major depressive disorder	Not described	Ideation	12 sessions	The patient had complete remission of akathisia and all depressive symptoms. In the following 2 years, during which she was followed up, she had no adverse effects and her improvement was maintained with an antidepressant.
Narita 2018[18]	Case report	Subjective evaluation	N=1 Women 42 years	Refractory psychosis	Not described	Ideation	12 sessions Bilateral	The patient's psychosis was partially improved with ECT treatment; but suicidal ideation, anxiety, and depersonalization did not improve significantly.
Mahato 2016[19]	Case report	Subjective evaluation	N=1 Women 50 years	Body dysmorphic disorder	Major depressive disorder	6 Attempts and ideation	11 sessions Bifrontal Answer: after 5th session	There was 1 well-tolerated confusional episode and remission of depressive and dysmorphic symptoms, maintained for 2 months with antidepressants and lithium. New suicide attempt after 3 months.
Lingeswaran 2018[20]	Case report	Standardized assessment + subjective evaluation	N=1 Women 40 years	Severe depression with psychotic symptoms	Not described	Intention	10 sessions Bilateral on alternate days	The patient had a good response and adherence to treatment, with no cognitive impairment in the 3 months following follow-up after ECT treatment.
Webster 2018[21]	Case report	Subjective evaluation	N=1 Women 39 years old	Dissociative Identity Disorder	Severe Major Depressive Disorder with psychotic symptoms and Post Traumatic Stress Disorder with dissociative symptoms; substance abuse.	Chronic attempts (every night for 18 months)	right one-sided Weekly for 2 years Follow-up: spaced every 2 weeks	The patient showed improvement in affect, mood and a decrease in suicidal ideation. Anterograde memory impairment allowed the patient to recognize and process trauma in a safe therapeutic environment. He showed improvement in suicidal ideation for 2 years. During follow-up, he maintained self-injurious behavior without suicidal intent.

Suicidal symptoms prior to ECT treatment are present in 84.21% of the selected articles, and were classified as intent (6.25%), ideation (50%) and attempted (50%) suicide. ECT treatment was associated with an improvement in the condition in 89.47% of the articles, with 58.82% of them explaining an improvement in suicidal symptoms and 41.18% not explicitly describing an improvement in suicidal symptoms, but this improvement can be interpreted from the the remission of symptoms of the clinical condition, mainly depressive ones, or the fact that there was suicidal ideation/attempted before the treatment and not after. Treatment with ECT was not associated with an improvement in suicidal risk/symptoms in 10.53% of the articles.

Adverse effects of ECT were evaluated by eight studies, and were present in 75% of them. Transient anterograde memory impairment was the most described adverse effect and other reported consequences were headache; mania/hypomania episode; nausea, vomiting; musculoskeletal pain; heart block episode secondary to anesthesia; preterm delivery and well-tolerated confusional episode. Relapses were described in six studies, 83.33% reported that they occurred or were more frequent during the first year after the end of ECT treatment and one study reported that the improvement was maintained for 2 years.

DISCUSSION

Kheirabadi 2020[4], Zhang 2016[5], Ahmadi 2016[8], Liang 2018[11], Jørgense 2019[12], and Tor 2020[13] showed positive

outcomes of the use of ECT in relation to the risk of suicide when comparing groups of patients who were treated with this technique with other groups who were not. Liang 2018[11] performed a study in patients with unipolar or bipolar disorder and Jørgense 2019[12] evaluated patients with single or recurrent depression. Both reported a lower risk of suicide in patients who received ECT compared to the control group.

Kheirabadi 2020[4] and Ahmadi 2016[8] also evaluated patients with depression, considering, respectively, patients with refractory major depressive disorder and patients with major depressive disorder associated with post-traumatic stress disorder, in addition to a control group that did not have either disorder. Kheirabadi 2020[4] showed that patients treated with ECT had an improvement in suicidal ideation and Ahmadi 2016[8] report a lower suicide rate in the ECT-treated group compared to the control group. Tor 2020[13] in turn, stratify patients with schizophrenia into suicidal and non-suicidal groups and most participants at risk of suicide showed improvement after treatment with ECT.

Zhang 2016[5] selected elderly patients with dementia who had ideation at high risk of suicide, most of whom had a good response to treatment. This study is consistent with Veltman 2019[10] who stated a satisfactory response to ECT in the elderly.

Liang 2018[11], Shilton 2020[14], Kalling 2021[15], Çakir 2017[16], and Mahato 2016[19] described that relapses occurred or were more frequent during the first year after ECT treatment. Kalling 2021[15] evaluated patients with acute

polymorphic psychotic disorder without symptoms of schizophrenia, who had a higher relapse rate in the 1st year after ECT treatment (20%) compared to subsequent years. However, Çakir 2017[16] followed patients with unipolar or bipolar depressive disorder, over a year after treatment, their results revealed a high rate (66%) of relapse in this period, indicating that the effectiveness of ECT in the long term term is low. Some factors that may justify this variation in the studies are the follow-up time, largest in the cohort of Kalling 2021[15], 6 years, compared to Çakir 2017[16], of only one year. In addition, it is important to highlight that in addition to the difference in relation to the underlying pathology, patients in the study carried out by Çakir 2017[16] had several psychiatric comorbidities, which may interfere with the relapse rate.

Ray-Griffith 2016[9], Veltman 2019[10], and Shilton 2020[14] also showed the effects of ECT in patients with depressive disorder, indicating an association of improvement in depressive symptoms with a reduction in suicidal risk. It is noteworthy that studies of Ray-Griffith 2016[9] and Shilton 2020[14] and turned to specific groups, the first for female adolescents with anorexia nervosa and the second for pregnant women with mental disorders, indicating that ECT is a quick and effective tool to be considered in the risk/benefit assessment of these groups.

Thukral-Mahajan 2017[6], Emmanuel 2019[17], and Lingeswaran 2018[20] wrote case reports on patients with refractory or severe depressive disorder, revealing a positive

outcome of the use of ECT in the clinical picture. Despite being case reports, with only one patient, these results, together with the cohort studies presented, reinforce the positive effects of this technique in cases of severe depression.

Hassani 2020[2], Mahato 2016[19], and Webster 2018[21] presented case reports involving previous suicide attempts, with improvement of symptoms after treatment with ECT. The case reported by Hassani 2020[2] involved bipolar I disorder; by Webster 2018[21], dissociative identity disorder with psychiatric comorbidities; and by Mahato 2016[19], body dysmorphic disorder and major depressive disorder.

In the report of Mahato 2016[19] there were several previous attempts and suicidal ideation and after three months of improvement with ECT treatment there was a new suicide attempt. This case highlights the importance of careful follow-up, especially in the first year after ECT treatment, when the patient has a higher risk of recurrence. In general, these studies demonstrate that ECT is valid for several mental disorders, with positive outcomes, especially in cases of severe depression, being, in these cases, a strategic tool for refractory patients.

Peltzman 2020[7] and Narita 2018[18] found no positive association between ECT treatment and improvement in suicidal risk/symptoms. The cohort of Peltzman 2020[7] identified a higher prevalence of suicides among the group treated with ECT, with different mental disorders, compared to the control group. The authors, however, such as Ahmadi

2016[8] and Liang 2018[11] in their cohorts, specified that ECT was indicated for more severely ill patients. In that regard, Liang 2018[11] sought to reduce selection bias through a control group with at least 3 hospitalizations and associated greater severity of suicidal symptoms with a better prognosis with treatment, a result different from that presented by Peltzman 2020[7]. Another factor that may have influenced these different outcomes is the diversity of mental disorders covered by the cohort.

Narita 2018[18] reported the case of a patient with multiple sclerosis and refractory psychosis, whose one of the symptoms was suicidal ideation. The treatment partially improved refractory psychosis and did not lead to remission of suicidal ideation, anxiety and depersonalization, so that the maintenance of other symptoms may have influenced the non-remission of suicidal ideation; in addition, the assessment of the patient's symptoms was subjective, therefore subject to evaluator bias.

Kheirabadi 2020[4], Thukral-Mahajan 2017[6], Ray-Griffith 2016[9], Shilton 2020[14] , Mahato 2016[19], and Webster 2018[21] report adverse effects associated with ECT, with transient anterograde memory impairment being the most prevalent, as pointed out by Kheirabadi 2020[4], and most of these studies adopted the bilateral placement of the electrodes, described as more effective at lower doses, although more associated with this adverse effect[1]. Among the other complications, the complication secondary to anesthesia reported by Ray-Griffith 2016[9] highlights the importance of

constant monitoring of the patient by the team during the procedure[3,4].

CONCLUSION

Although ECT is associated with adverse effects, among which anterograde memory impairment stands out, these effects are described as transient and long-term adverse effects are not reported. An important risk is that of complications related to anesthesia, so clinical follow-up during the procedure is essential. Despite this, the therapy is capable of promoting rapid results for several mental disorders, including in refractory patients, mainly depressive, and in specific groups such as the elderly and pregnant women, being a potent strategy in the management of suicidal risk. However, the high risk of relapses during the first year after remission with ECT is highlighted, when suicidal symptoms may return. Therefore, post-treatment follow-up is necessary, considering that health care must be continuous, especially when considering severe cases, as well as the development of new research that evaluates long-term ECT treatment outcomes.

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