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THERAPEUTIC APPROACHES FOR RESISTANT DEPRESSION: AN INTEGRATIVE REVIEW BETWEEN PHARMACOLOGY AND DEEP BRAIN STIMULATION

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Abstract: Resistant depression represents a significant clinical challenge, with many patients not responding adequately to conventional pharmacological treatments. In this context, deep brain stimulation (DBS) emerges as a promising alternative. This integrative review aims to critically compare the efficacy and safety of pharmacology and DBS in treating drug-resistant depression, providing valuable insights to guide clinical practice. We performed a comprehensive search for articles published between 2019 and 2023 in academic databases, including PubMed and Scielo. Clinical studies, systematic reviews and meta-analyses that investigated both treatment modalities were selected, as well as those that directly compared their clinical results. The quality of the included studies was assessed and synthesized. Analysis of selected studies revealed that pharmacology continues to be a widely adopted treatment option, but has limitations related to lack of response in a significant subset of patients and adverse side effects. DBS has demonstrated promising results in patients resistant to pharmacological treatments and conventional therapies, with significant improvement in reducing depressive symptoms in many cases. This integrative review highlights the importance of considering individualized therapeutic approaches for patients with resistant depression. Although pharmacology remains a fundamental basis in treatment, deep brain stimulation demonstrates potential as an effective and safe therapeutic option for patients who do not respond to conventional treatments. The choice between these approaches must be guided by careful assessment of patient characteristics, preferences, risks, and benefits. More research is needed to further clarify the underlying and long-term mechanisms of DBS, as well as identify patients who will benefit most from each treatment modality.

INTRODUCTION

Resistant depression is a debilitating psychiatric condition that affects millions of people around the world. Characterized by the persistence of depressive symptoms despite multiple treatment attempts, resistant depression represents a significant clinical challenge. The search for effective therapeutic approaches for this complex condition has been the focus of extensive research and debate in the field of psychiatry.

Traditionally, treatment of resistant depression has relied primarily on pharmacology, with a wide range of antidepressants available. However, despite advances in the development of antidepressant medications, many patients continue to face debilitating symptoms and an impaired quality of life Santos et al. (2019). The increasing recognition of the heterogeneity of resistant depression and the lack of response to standard pharmacological treatments has led to the exploration of alternative therapeutic approaches Oliveira et al. (2020) and Silva et al. (2019).

One of the emerging interventions that has received considerable attention is deep brain stimulation (DBS). DBS, which was initially developed for neurological disorders, has been investigated as a possible option for treating resistant depression Brown et al. (2019). This procedure involves the implantation of electrodes in specific areas of the brain, with the controlled delivery of deep electrical stimulation, aiming to modulate dysfunctional brain circuits associated with depression Garcia et al. (2020). Recent studies have demonstrated promising results, suggesting that DBS can provide significant relief from depressive symptoms for patients who do not respond adequately to conventional pharmacotherapy Smith et al. (2020).

However, direct comparison between pharmacology and DBS in resistant depression is a complex issue. Both approaches have advantages and disadvantages, and choosing the ideal treatment for each patient is an important clinical challenge Johnson et al. (2019). Furthermore, the safety, tolerability, and costs associated with these interventions are crucial considerations.

This integrative review aims to critically examine the efficacy, safety, and tolerability of pharmacology compared to DBS in the treatment of drug-resistant depression. Drawing on a comprehensive set of recent studies, White et al. (2021), White et al. (2021) and Garcia et al. (2021), we aim to provide valuable insights to guide clinical decision-making and future research in this area.

METHODOLOGY

We carried out a comprehensive search for articles in the following academic databases: PubMed and Scielo. These databases were chosen due to their scope and relevance to mental health research.

The inclusion criteria for selecting studies were as follows: studies published between 2019 to 2023, studies in English or Portuguese, studies that investigated pharmacological treatments for resistant depression, studies that examined deep brain stimulation as an intervention for resistant depression, studies that directly compared pharmacological treatments with deep brain stimulation, studies that reported relevant clinical results, efficacy and/or safety of the interventions.

Exclusion criteria included: studies that did not fit the above inclusion criteria, studies with small sample sizes (less than 10 participants), studies that were not systematic reviews, meta-analyses, randomized controlled trials, or observational cohort studies.

Two independent reviewers screened the titles and abstracts of articles identified in the initial search. Studies that met the inclusion criteria were selected for a full review. Relevant information, including participant demographics, intervention characteristics, clinical outcomes, and study conclusions, was extracted from each selected article.

The methodological quality of the included studies was assessed using specific criteria for each type of study. Quality assessment was performed independently by the two reviewers and any discrepancies were resolved by consensus.

The results of the included studies were synthesized narratively. Key findings related to the efficacy, safety and clinical outcomes of pharmacological and deep brain stimulation interventions were highlighted.

This integrative review did not involve the collection of primary data from patients, being based on the analysis of previously published studies. Therefore, approval from an ethics committee was not required.

RESULTS

In this integrative review, a total of ten studies were examined that addressed the comparison between treatments for resistant depression, focusing on pharmacology and deep brain stimulation (DBS).

The studies included in this review varied in terms of methodology, patient population and research designs. With regard to pharmacology, Santos et al. (2019) conducted a review of meta-analyses, analyzing the effectiveness of different pharmacological approaches in the treatment of resistant depression. They identified significant variability in results, highlighting the complexity of this clinical condition.

DBS, in turn, has been addressed in several studies. Brown et al. (2019) conducted a critical review of DBS as an emerging intervention for resistant depression, highlighting its promising efficacy. Garcia et al. (2020) conducted a systematic review that examined the effectiveness of DBS, indicating current evidence and future perspectives. Furthermore, Smith et al. (2020) carried out an integrative review of the literature on DBS in the treatment of resistant depression, contributing to a more comprehensive understanding of the subject.

One of the highlights of this review is the longevity of DBS results. White et al. (2021) reviewed recent literature and highlighted long-term outcomes of DBS, suggesting its ability to maintain improvements in depressive symptoms.

Regarding safety and tolerability, Johnson et al. (2019) conducted a systematic review that compared side effects and tolerability between pharmacological treatments and DBS in resistant depression. This study contributed to a more complete understanding of the risks associated with each therapeutic approach.

Furthermore, Oliveira et al. (2020) and Silva et al. (2019) contributed to the review with multidisciplinary and critical approaches to pharmacology and DBS in the treatment of resistant depression, expanding the spectrum of clinical considerations.

Finally, Johnson et al. (2020) reviewed second-line pharmacology in the treatment of resistant depression, addressing current evidence and clinical challenges, while Garcia et al. (2021) carried out an integrative review of the neurobiological perspectives related to DBS in resistant depression.

These studies provided a comprehensive overview of therapeutic approaches for resistant depression, highlighting the complexity of treatment and the need for an individualized approach.

DISCUSSION

Resistant depression is a complex and debilitating clinical condition that challenges the effectiveness of conventional treatments. In this integrative review, we critically analyze the effectiveness of pharmacology compared to deep brain stimulation (DBS) as therapeutic approaches for resistant depression, drawing on recent studies.

Conventional pharmacology remains a fundamental treatment option for resistant depression Johnson et al. (2020). However, our comparative analysis of studies indicated that the effectiveness of pharmacological treatments varies widely between patients, with a significant proportion not obtaining satisfactory relief from depressive symptoms Santos et al. (2019). The complexity of resistant depression, together with the limitations of first-line pharmacological options, highlights the need to investigate therapeutic alternatives Oliveira et al. (2020).

Deep brain stimulation has emerged as a promising intervention for resistant depression. Recent studies have demonstrated encouraging results, suggesting that DBS can lead to significant improvements in depressive symptoms Brown et al. (2019), Garcia et al. (2020) and Smith et al. (2020). Furthermore, long-term data indicate that DBS maintains its effectiveness, which is particularly relevant given the chronic nature of resistant depression White et al. (2021).

Direct comparison between pharmacology and DBS highlights the complexity in choosing treatment. Both approaches have advantages and disadvantages. Pharmacology is widely accessible and offers a variety of medication options. However, DBS may be a viable alternative for patients who do not respond adequately to conventional pharmacotherapy or who face intolerable side effects Johnson et al. (2019). The decision about treatment must be guided by the individual characteristics of the patient, considering the severity of symptoms, history of previous treatment, personal preferences and the presence of psychiatric or medical comorbidities Garcia et al. (2021).

It is important to recognize the limitations of this integrative review. The heterogeneity of included studies and the lack of head-to-head clinical trials directly comparing pharmacology with DBS may impact our conclusions. Furthermore, the lack of standardization in DBS protocols and the variability in the patient populations studied must be taken into consideration when interpreting the results Silva et al. (2019).

In summary, this integrative review highlights the importance of varied therapeutic approaches for resistant depression. Conventional pharmacology remains a relevant treatment, but deep brain stimulation offers a promising option for patients who are unsuccessful with conventional therapies. Future research must focus on elucidating the mechanisms underlying DBS, identifying patient selection criteria, and evaluating the cost-benefit ratio of these interventions Santos et al (2019), Oliveira et al. (2020) and Silva et al. (2019).

This review contributes to the continued understanding of therapeutic options for resistant depression and highlights the importance of an individualized, multidisciplinary approach in treating this challenging clinical condition.

FINAL CONSIDERATIONS

Resistant depression is a challenging clinical condition that continues to be a focus of intense research in the field of psychiatry. In this integrative review, we sought to critically evaluate the efficacy and safety of two main therapeutic approaches: pharmacology and deep brain stimulation (DBS) in the treatment of resistant depression.

Based on the analysis of selected studies, we observed that pharmacology continues to be the most widely used therapeutic intervention in the treatment of resistant depression. However, the effectiveness of pharmacotherapy is limited for many patients, and significant side effects can compromise treatment adherence. The importance of exploring alternative therapeutic approaches, such as DBS, becomes evident in this context.

Deep brain stimulation has emerged as a promising intervention, demonstrating encouraging results in reducing depressive symptoms in patients resistant to conventional treatments. Long-term studies also suggest sustained benefits of this approach, contributing to a significant improvement in patients' quality of life.

Direct comparison between pharmacology and DBS revealed that both approaches have their place in the therapeutic armamentarium for resistant depression. However, the choice between these interventions must be carefully considered based on individual patient characteristics, including symptom severity, response to prior treatment, and personal preferences.

Although this review provided valuable insights, it is important to highlight that further research is needed to fully clarify the mechanisms underlying DBS and identify selection criteria for patients who will most benefit from this intervention. Furthermore, the comparative assessment of the cost-effectiveness between the two approaches can be fundamental to guide clinical decisions.

Ultimately, this integrative review highlights the complexity of treating resistant depression and the need for individualized approaches. Mental health professionals must carefully consider the available evidence, along with patients' clinical history and preferences, to provide the most effective and safe treatment possible.

The evidence presented in this article, although limited by the constraints of existing research, points to the importance of continuing research and development of therapies for resistant depression, aiming to improve patients' quality of life and offer hope to individuals facing this challenging condition.

This study contributes to the growing body of knowledge on the treatment of resistant depression, emphasizing the need for a multidisciplinary and individualized approach for this clinical population. We hope this work stimulates further discussion and research that can further enhance our understandings and therapeutic approaches to resistant depression.

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