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Use of lisdexamfetamine in the treatment of attention deficit hyperactivity disorder.

Use of lisdexamfetamine in the treatment of attention-deficit hyperactivity disorder

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Summary

Introduction: ADHD is a neurodevelopmental disorder that affects attention, impulsivity, and hyperactivity. Its origin involves genetic and environmental factors that alter dopaminergic neurotransmission. The diagnosis is clinical, according to the DSM-5, and treatment includes therapy and medications, such as lisdexamfetamine, a long-acting psychostimulant. Its use must be monitored to minimize adverse effects, and pharmaceutical follow-up is fundamental to ensure efficacy and adherence to treatment. **Objective:** To understand the efficacy and safety of lisdexamfetamine in the treatment of ADHD, as well as the pharmacist's role in guiding and monitoring the use of this medication. **Method:** This is an integrative literature review, aiming to systematize and analyze the available evidence on the relationship between spirituality, meaning of life, and palliative care. **Expected Results:** To analyze the impact and role of the pharmacist in guiding and monitoring its use. Furthermore, it examines how the professional's actions can improve treatment adherence and reduce risks. Contributing to advancements in the field and encouraging future research on the topic.

Keywords: ADHD, lisdexamfetamine, neurotransmission, pharmaceutical, treatment.

Abstract

Introduction: ADHD is a neurodevelopmental disorder that affects attention, impulsivity, and hyperactivity. Its origin involves genetic and environmental factors that alter dopaminergic neurotransmission. The diagnosis is clinical, following the DSM-5, and treatment includes therapy and medications, such as lisdexamfetamine, a long-acting psychostimulant. Its use should be monitored to minimize adverse effects, and pharmaceutical monitoring is essential to ensure efficacy and adherence to treatment. Objective: To understand the efficacy and safety of lisdexamfetamine in the treatment of ADHD, as well as the role of the pharmacist in guiding and monitoring the use of this medication. Method: This is an integrative literature review that seeks to systematize and analyze the available evidence on the relationship between spirituality, meaning of life, and palliative care. Expected Results: to analyze the impact and role of the pharmacist in guiding and monitoring use. In In addition, it examines how the professional's performance can improve treatment adherence and reduce risks. Contributing to advances in the area and encouraging future research on the subject.
Keywords: *ADHD, lisdexamfetamine, neurotransmission, pharmaceutical, treatment.*

1 INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is a disorder neurodevelopmental disorder, characterized by persistent symptoms of inattention, hyperactivity and Impulsivity. These symptoms significantly affect academic, professional, and professional performance.

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The individual's social dynamics. Of multifactorial origin, ADHD involves the interaction of genetic factors, neurobiological and environmental factors, resulting in dysfunctions in dopaminergic neurotransmission and Noradrenergic hormones, which are fundamental for controlling attention and behavior.

The diagnosis is clinical and based on criteria established by the DSM-5 (Manual). Diagnostic and Statistical Manual of Mental Disorders). Treatment may include intervention. psychosocial therapy, behavioral therapy, and stimulant medications, such as lisdexamfetamine, which They help regulate brain neurotransmission and alleviate symptoms. Among the pharmacological options Available psychostimulants are considered the first line of treatment due to their Proven efficacy. Lisdexamfetamine, a prodrug of dextroamphetamine, stands out as One of the main therapeutic options for managing ADHD. Its chemical structure allows it to... Gradual release of the active ingredient, providing a prolonged effect and reducing the risks of Abuse and dependence are frequently associated with other stimulants. Furthermore, their conversion... Enzymatic activity in the gastrointestinal tract minimizes variability in absorption and promotes a profile more stable pharmacokinetic.

Clinical studies demonstrate that lisdexamfetamine significantly improves the ADHD symptomatology, promoting greater attention control, reduced impulsivity and It improves the academic and social performance of patients. Its prolonged action allows for... Once-daily administration increases adherence to treatment and simplifies individuals' routines. affected by the disorder. However, like any stimulant drug, its use should be carefully monitored due to possible adverse effects such as insomnia, loss of appetite and increased blood pressure.

Therefore, lisdexamfetamine represents an important advance in the treatment of ADHD. offering an effective and safe therapeutic option for patients who require control prolonged symptoms. Understanding its mechanism of action, efficacy, and safety is Essential for pharmaceutical practice, ensuring adequate and individualized monitoring. for each patient. Thus, the pharmacist's role becomes crucial in counseling, in monitoring adverse effects and promoting the rational use of medication, contributing to improve the quality of life of individuals with ADHD.

The relevance of the study on lisdexamfetamine in the treatment of ADHD lies in There is a need to deepen our understanding of its therapeutic advantages and long-term safety. timeframe. Considering the high prevalence of the disorder and its significant impact on patients' lives, It is essential that healthcare professionals, especially pharmacists, are trained. to provide correct guidance on the use of this medication. Therefore, research and... Disseminating information on the subject is essential to optimize the therapeutic approach.

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and ensure greater adherence to treatment.

Based on the above, the following research question emerges: to understand the effectiveness and the The safety of lisdexamfetamine in the treatment of ADHD, as well as the role of the pharmacist in... guidance and monitoring of the use of this medication. The lack of adequate information about Its mechanism of action and potential adverse effects may compromise adherence to treatment and the quality of life of patients. Therefore, investigating the action of lisdexamfetamine and its relevance. In clinical practice, it is essential for improving pharmaceutical care and optimizing outcomes. therapeutic.

The choice of this topic is justified by the relevance of ADHD as a neuropsychiatric disorder. of high prevalence, which negatively impacts various aspects of patients' lives. The use of Lisdexamfetamine has proven to be an effective alternative in managing symptoms, but still... Challenges persist related to treatment adherence, monitoring of adverse effects, and... knowledge of its mechanism of action. Furthermore, the pharmacist's role as a guide and... Monitoring medication treatment has been increasingly recognized as essential for to ensure the rational use of medicines.

Thus, this study aims to contribute to the expansion of scientific knowledge about the The efficacy and safety of lisdexamfetamine, as well as reinforcing the importance of monitoring, should be discussed. professional to optimize therapeutic outcomes and improve patients' quality of life. with Attention Deficit Hyperactivity Disorder.

2 OBJECTIVES

2.1 PRIMARY OBJECTIVE

To describe the use of lisdexamfetamine in the treatment of attention deficit disorder and hyperactivity.

2.2 Secondary Objectives

- Describe the pharmacokinetics and pharmacodynamics of lisdexamfetamine.
- Describe the importance of the pharmacist's role in adherence to and maintenance of treatment by patients. patients;
- To analyze the therapeutic effects of lisdexamfetamine in the treatment of ADHD, focusing on improvement. attention, in reducing impulsivity and in cognitive control.

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- To verify the efficacy and efficiency of lisdexamfetamine in the treatment of Autism Spectrum Disorder Attention Deficit Hyperactivity Disorder (ADHD).

3 LITERATURE REVIEW

3.1 Attention Deficit Hyperactivity Disorder (ADHD)

Attention Deficit Hyperactivity Disorder (ADHD) is a neurobiological disorder. chronic, genetically based disorder characterized by inattention and hyperactivity in people affected by the disorder (OLIVEIRA *et al.,* 2018).

The disease is related to a neurochemical dysfunction in the brain and the mechanisms The pathophysiological effects are not yet well understood; however, studies have identified a reduction in some... areas such as the frontal cortex, cerebellum, and subcortical structures. It was also evidenced that... Dysregulation in the production of the neurotransmitters dopamine and norepinephrine. Currently, it is known that ADHD has a clear genetic basis (PASSOS, 2022).

Imbalances in the mesocortical dopaminergic pathway are associated with cognitive deficits. while dopaminergic hypoactivity in the mesolimbic pathway is considered responsible for the deficits Motivational factors observed in patients with ADHD. The mesolimbic pathway is also very important. in the reward circuit, which is impaired in the disorder (SILVEIRA *et al.,* 2021).

ADHD is one of the most commonly diagnosed neuropsychiatric disorders in Children, with a prevalence of 5.3% in the world population. Among the children diagnosed, 60% They present symptoms throughout adulthood (Sônego *et* al., 2021). There are 3 subtypes of ADHD: The combined subtype, which represents 50% to 75%; the inattentive subtype, from 20% to 30%; and the subtype Hyperactive-impulsive, accounting for 15% to 20% of the entire population diagnosed with ADHD (BRAZIL, 2020).

It is estimated that between 5% and 8% of the world's population is affected by Attention Deficit Disorder. Attention Deficit Hyperactivity Disorder (BRAZIL, 2022). According to the World Health Organization According to the WHO, one in eight people lives with a mental disorder, characterized by disturbances. significant in thought, emotional regulation, or behavior. Although, nowadays, Although access to information is increasing, most people still lack access to care. effective (WHO, 2022).

3.2 DIAGNOSIS

The diagnosis of ADHD is made primarily through observation and evaluation of characteristic symptoms, such as inattention, hyperactivity, and impulsivity, that affect daily life.

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The person's day. No imaging or laboratory tests are needed to confirm the diagnosis.
(CONITEC, 2021)

To diagnose Attention Deficit Hyperactivity Disorder (ADHD), it is essential
To carry out a complete clinical and psychosocial assessment, conducted by qualified professionals such as psychiatrists, pediatricians, neurologists or neuropediatricians, together with a team specialized multidisciplinary. (PCDT, 2022)

Diagnostic confirmation is based on the identification of the 18 characteristic symptoms of inattention, hyperactivity, and impulsivity, adapted to the individual's developmental stage and Considering their perspective, the use of rating scales, such as the SNAP-IV, is recommended. for a more objective evaluation and for monitoring the proposed interventions, ensuring an accurate diagnosis and the implementation of an appropriate and personalized treatment plan for each case of ADHD. (PCDT, 2022)

SNAP-IV (Swanson, Nolan, and Pelham Teacher and Parent Rating Scale) is a questionnaire of assessment used to identify and measure the symptoms of Attention Deficit Hyperactivity Disorder (ADHD). Hyperactivity (ADHD) in children and adolescents, based on the DSM-5 diagnostic criteria. (Diagnostic and Statistical Manual of Mental Disorders) and assesses behaviors in two main dimensions:

• Inattention: Includes items that measure difficulty in maintaining attention and following instructions. and in completing tasks.

• Hyperactivity/Impulsivity: Includes items that assess behaviors such as restlessness, Difficulty remaining seated, excessive talking, and impulsivity.

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Table 1 - Criteria for ADHD diagnosis

Critérios diagnósticos para Transtorno de Déficit de Atenção/Hiperatividade- DSM-5-2014.	
A	1. Seis (ou mais) dos seguintes sintomas de **desatenção** (duração mínima 6 meses). a) Frequentemente deixa de prestar atenção aos detalhes ou comete erros por descuidado em atividades escolares, de trabalho ou outras; b) Com frequência tem dificuldades para manter a atenção em tarefas ou atividades lúdicas; c) Com frequência parece não escutar quando lhe dirigem a palavra; d) Com frequência não segue instruções e não termina seus deveres escolares, tarefas domésticas ou deveres profissionais; e) Com frequência tem dificuldade para organizar tarefas e atividades; f) Com frequência evita, antipatiza ou reluta em envolver-se em tarefas que exigem esforço mental constante; g) Com frequência perde coisas necessárias para tarefas ou atividades; h) É facilmente distraído por estímulos alheios à tarefa; i) Com frequência apresenta esquecimento em atividades diárias. 1. Seis (ou mais) dos seguintes sintomas de **hiperatividade e impulsividade** (duração mínima 6 meses). a) Frequentemente agita as mãos ou os pés ou se remexe na cadeira; b) Frequentemente abandona sua cadeira em sala de aula ou em outras situações nas quais se espera que permaneça sentado; C) Frequentemente corre ou escala em demais situações nas quais isto é inapropriado; d) Com frequência tem dificuldade para brincar ou se envolver silenciosamente em atividades de lazer; e) Está frequentemente "a mil" ou muitas vezes age como se estivesse "a todo vapor"; f) Frequentemente fala em demasia. **Impulsividade** g) Frequentemente dá respostas precipitadas antes de as perguntas terem sido completadas; h) Com frequência tem dificuldade para aguardar sua vez; i) Frequentemente interrompe ou se mete em assunto de outros.
B	Alguns sintomas de hiperatividade- impulsividade ou desatenção que causam prejuízo devem estar presentes antes dos 12 anos de idade.
C	Algum prejuízo causado pelos sintomas está presente em dois ou mais contextos (escola, trabalho e em casa), por exemplo.
D	Deve haver claras evidências de prejuízo clinicamente significativo no funcionamento social, acadêmico ou ocupacional.

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E	Os sintomas não ocorrem exclusivamente durante o curso de um transtorno invasivo do desenvolvimento, esquizofrenia ou outro transtorno psicótico e não são mais bem explicados por outro transtorno mental.

Fonte: Dados obtidos do Manual Diagnóstico E Estatístico De Transtornos Mentais - DSM-V, 2014.

3.3 LISDEXAMPHETAMINE

Psychotropic drugs are medications intended for the treatment of mental disorders and They are divided into classes, such as antidepressants, antiepileptics, anxiolytics, antipsychotics and... Mood stabilizers. The main factors involved in the use of psychotropic drugs are anxiety, Depression, insomnia, manic psychosis, schizophrenia, and other symptoms. In addition to these, one finds... attention deficit hyperactivity disorder (Souza *et al.,* 2021).

According to Maciel (2023), ADHD treatment is generally carried out with medication. Stimulants, such as methylphenidate and lisdexamfetamine. As a non-stimulant alternative, use... Atomoxetine. Lisdexamfetamine dimesylate, better known by its trade name Venvanse®. (lisdexamfetamine dimesylate) is an amphetamine that stimulates the central nervous system and is widely used in the treatment of ADHD.

Lisdexamfetamine is a central nervous system (CNS) stimulant used in Treatment of attention deficit hyperactivity disorder (ADHD). This drug is a prodrug. dextroamphetamine, known as d-amphetamine, covalently linked to the natural amino acid L-lysine. Lisdexamfetamine is the first chemically formulated stimulant prodrug, which It blocks the reuptake of dopamine and norepinephrine and increases their levels in the extraneuronal space. (DRUGBANK, 2024).

Pharmacokinetic studies have shown that lisdexamfetamine is converted into dextroamphetamine and L-lysine are primarily found in the blood, through the hydrolytic activity of erythrocytes, without being metabolized by cytochrome P450 enzymes. After oral administration, the greater Part of the radioactivity from the dose was recovered in the urine, with dextroamphetamine being the main component. excreted component. (DRUGBANK, 2024)

4 METHOD

4.1 TYPE OF STUDY

This is an integrative literature review, aiming to systematize and analyze the... Available evidence on the relationship between efficacy and the pharmacist's role in guidance and...

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Monitoring the use of this medication.

4.2 LOCATION AND PERIOD

The survey of publications will be carried out by consulting databases.
Scientific Electronic Library Online (SciELO) and Google Scholar, from 2020 to 2025.
The following descriptors will be used: ADHD, lisdexamfetamine, neurotransmission, pharmaceutical.
treatment.

4.3 Inclusion and Exclusion Criteria

The inclusion criteria will be: complete scientific articles related to the topic, published
Between 2020 and 2025, free of charge and in Portuguese. Book chapters and proceedings will be excluded.
Dissertations, theses, and articles that are repetitive or incomplete, that do not answer the guiding question, and that
are outside the specified period.

4.4 DATA ANALYSIS

The collected data will be explained, analyzed, and presented in descriptive tables that...
They contain the following information: author/year, objective, method, and main results.

This review will be structured according to the Preferred Reporting Items.
for Systematic Reviews and Meta-Analyses (PRISMA) Guidelines, with the development of a
The four-step flowchart described below, as shown in Figure 1 (Galvão *et* al., 2015).

• Step 1 – Identification: conducting a search for articles in databases using the
selected descriptors.

• Step 2 – Screening: reading the titles to check for duplicate studies across the databases.
of data.

• Step 3 – Eligibility: reading titles and abstracts to verify the study's relevance to
The guiding question, as well as the application of the established inclusion and exclusion criteria.

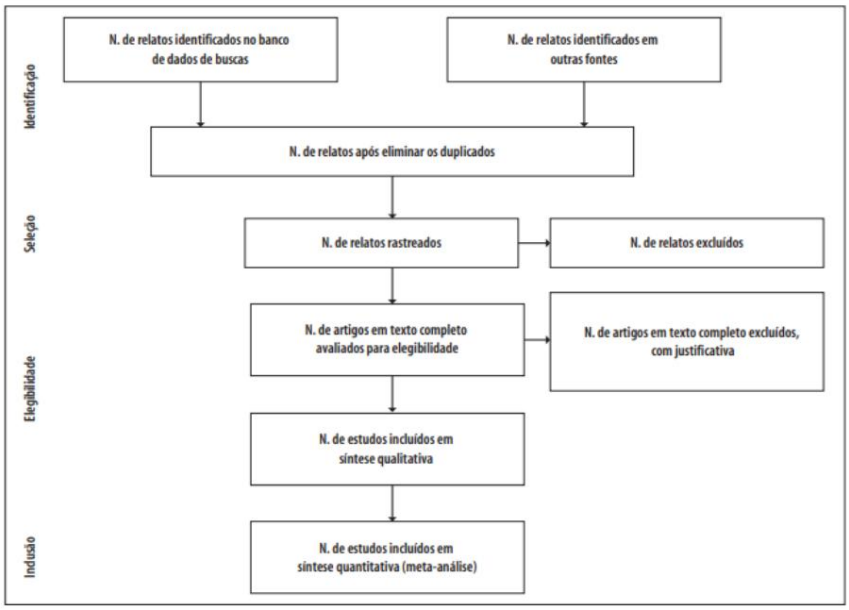
• Step 4 – Inclusion: full reading of the selected articles for categorization and extraction.
data that will comprise the systematic review.

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Figure 1 – Schematic representation of the article selection flowchart, according to the PRISMA method.



Source: Dourado; Melo, 2020

4.5 RISKS

The research will not pose any risk to humans as it only involves data extracted from Materials published in databases.

4.6 BENEFITS

This study makes a significant contribution to the field of health by providing information. detailed information about the efficacy and safety of lisdexamfetamine in the treatment of ADHD. Furthermore, It assists in the training of pharmaceutical professionals, reinforcing the importance of guidance and... Proper monitoring of patients using this medication. The research also seeks to promote adherence to treatment, reduce the risks associated with inappropriate use, and improve the quality of life of individuals with ADHD. Therefore, this study may influence positively impact clinical practice and contribute to optimizing the therapeutic management of the disorder.

4.7 Ethical Procedures

The study will not be submitted for approval to the Research Ethics Committee, in accordance with... Resolution CNS 466/2012, as this is an integrative literature review research that does not It involves human beings, only data from the literature.

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FINAL CONSIDERATIONS

In light of the above, it can be concluded that lisdexamfetamine is consolidating itself as a tool. An effective therapy in the management of ADHD, offering significant benefits in attention regulation. and in controlling impulsivity, due to its long-acting pharmacokinetics. However, the The complexity of the treatment and the potential for adverse effects reinforce the idea that success Clinical care does not depend exclusively on pharmacology, but rather on ongoing monitoring. rigorous multidisciplinary approach.

In this scenario, the pharmacist's role emerges as a strategic differentiator. Their role... This professional, through pharmaceutical care and constant monitoring, is able to:

- Increase adherence rates by mitigating fears and prejudices about the use of Psychostimulants;
- To identify adverse reactions early, allowing for safe and personalized adjustments;
- To promote the rational use of medication, ensuring that it is an ally of quality of life. patient's life.

Therefore, the effective integration of the pharmacist into the healthcare team is essential to transform the prognosis of ADHD, ensuring that drug therapy reaches its maximum potential with the lowest possible risk.

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Safety and efficacy of lisdexamfetamine dimesylate in attention-deficit hyperactivity disorder:

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