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The consequences of using ritalin without a medical prescription

As consequências do uso da ritalina sem prescrição médica

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Abstract

It aimed to evaluate the use of the medication Ritalin® in academics without prescription and what effects this medication can cause in the human body. This research aims to show the importance of the correct use of methylphenidate medication, and the accurate diagnosis for its use, besides proving that it should only be used with a doctor's prescription, because it can cause serious side effects. ***Methodology****: A literature review study was carried out using the ABNT standard, using databases, SCIELO (Scientific Electronic Library Online), MEDLINE, LILACS, Academic Google, Bireme, Ebsco Host, Pubmed, books and 17 articles published between 2011 and 2021 in Portuguese, English and Spanish. The Keywords are "Ritalin®", "methylphenidate", "adverse effects", and "consequences", in Portuguese, Spanish and English, related to the themes, isolated and grouped together. Articles that met the following criteria were included: (1) studies that focus on the use of Ritalin® by students without a medical prescription (2) studies that are available in full text.* ***Results:*** *The consequences of using methylphenidate without a medical prescription, or even without monitoring by a multidisciplinary team for the treatment of the Disorder for which the medication is indicated, are abuse and dependence,*

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masking evolutionary diseases, especially those of mental health such as anxiety and panic syndrome, decreased appetite, decreased sleep, leading to decreased sleep quality, occasional and transient cardiovascular problems, such as increased systolic pressure, heart rate and respiratory rate, if the individual already has preexisting heart problems, it can lead to death. ***Conclusion****: The use of Ritalin® indefinitely and indiscriminately causes neurological, physical and mental consequences in people who consume it, making us think about the intake and sale of this medication to publics such as university students, and that the prescription and correct medical follow-up are indispensable*

Keywords: Ritalin; Methylphenidate; Adverse effects; Consequences

Resumo

Teve como **objetivo** avaliar o uso da medicação Ritalina® em acadêmicos sem prescrição médica e quais os efeitos que essa medicação pode causar no organismo humano. Essa pesquisa tem o intuito de mostrar a importância do uso correto da medicação metilfenidato, e do diagnóstico preciso para o uso dele, além de provar que ele só deve ser utilizado com prescrição médica, pois ele pode causar efeitos colaterais graves. **Metodologia**: Foi confeccionado usando a norma ABNT, realizado um estudo de revisão de literatura, por meio das bases de dados, SCIELO (Scientific Eletronic Library On-line), MEDLINE, LILACS, Google Acadêmico, Bireme, Ebsco Host, Pubmed, livros e 17 artigos publicados entre os anos 2011 á 2021 em português, inglês e espanhol. As Palavras-chaves são “Ritalina”, “metilfenidato”, “efeitos adversos”, e “consequências”, em língua portuguesa, espanhola e inglesa, relacionados aos temas, isoladas e agrupadas entre si. Foram incluídos os artigos que obedeceram aos seguintes critérios: (1) estudos que tenham como foco no uso de Ritalina® por estudantes sem prescrição médica (2) estudos que estejam disponíveis em texto completo. **Resultados**: As consequências do uso do metilfenidato sem prescrição médica, ou até sem acompanhamento de uma equipe multidisciplinar para tratamento do Transtorno para qual a medicação é indicada, são de abuso e dependência, mascaramento de doenças evolutivas, principalmente as de saúde mental como ansiedade e síndrome do pânico, diminuição do apetite, diminuição do sono, levando a consequência de qualidade do sono diminuída, problemas cardiovasculares pontuais e transitórios, como aumento da pressão sistólica, frequência cardíaca e respiratória, se o indivíduo já tiver problemas cardíacos preexistentes pode levar até ao óbito. **Conclusão:** O uso da Ritalina® por tempo indeterminado e indiscriminado, causam consequências neurológicas, físicas e mentais nas pessoas que a consomem, fazendo-nos pensar sobre a ingesta e venda dessa medicação para públicos como universitários, e que a receita e acompanhamento médico correto são indispensáveis.

Palavras-chaves: Ritalina; Metilfenidato; Efeitos adversos; Consequências

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Introduction

Methylphenidate (MPH) was first synthesized in 19 , in 1955 the pharmaceutical company CibaGeigy (predecessor of Novartis) was authorized to market the product under the name Ritalin®. In the early 1960s, it began to be used in the treatment of Attention Deficit Hyperactivity Disorder (ADHD). This disorder, considered neurobiological, usually presents during childhood and affects about 3%, in a larger case, in men and usually follows the user throughout life. In Brazil, it began to be marketed around 1988, becoming the world's largest consumer of Ritalin®. (CAMPOS, 2020)

Brain stimulants are used by students across the country and around the world to improve academic performance. They are substances that have the ability to increase alertness and motivation, in addition to having antidepressant properties, improving mood and cognitive performance. (MORGAN, 2017)

Some of the main effects experienced by CNS stimulants include increased concentration and memory, faster thinking, and decreased sleep at night. (DA GRAÇA, 2013)

In addition to the treatment of ADHD, methylphenidate is also used for recreational use, to seek more disposition for leisure; aesthetic use, suggestion of utility to help with weight loss; and the cognitive use, which seeks to have a greater expansion, related to psychic abilities. (BARROS, 2011)

The indiscriminate use of medications for cognitive improvement and sleep inhibitors is a problem to be questioned, as impaired sleep quality is one of the factors that most cause mental health problems, in addition to what is already being treated with the medication itself. .

According to Methylphenidate: Drug information – updated in 2021 in the USA the labeled indications for the use of the medication are:

Attention deficit/hyperactivity disorder: Treatment of attention deficit/hyperactivity disorder (ADHD).

Narcolepsy (Methylin , Metadata ER, Ritalin and Ritalin SR): Symptomatic management of narcolepsy. Use: Off - Label : Adult Fatigue, severe, cancer-related or in a palliative care setting; Major depressive disorder (unipolar) in patients with medical illness, palliative care, terminal illness, or the elderly

It aimed to evaluate the use of Ritalin ® medication in academics without medical prescription and what effects this medication can cause in the human body . This research aims to show the importance of the correct use of methylphenidate medication, and the accurate diagnosis for its use, in addition to proving that it should only be used with a medical prescription, and monitoring of a multidisciplinary team, as it can cause side effects. serious.

Despite a current issue, there are few articles published on the subject in the last 10 years, there is more field research with clinical tests, so it was necessary to make this project in order to increase the bibliographic documentation on the subject.

Results and discussion

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Society has always been creating strategies to enhance human productivity. Among them is the so-called “Pharmacological Cognitive Enhancement”, which is related to the use of drugs to “improve the brain”, that is, they are drugs that appear as alternatives in situations where high production expectations are not being met (COLI, 2016)

In today's world, a happy and prosperous man is one who is able to produce a high level of production in a short time, at low cost and with high quality; thus creating high expectations about the subject's abilities, affecting their mental health and self-esteem . (SILVA, 2012)

One of the most commonly used drugs for this purpose is methylphenidate hydrochloride, an amphetamine class drug known by the trade names, Concerta® , Ritalin® and Ritalin LA®. This substance acts as a central nervous system stimulant, as it is a potent inhibitor of dopamine and noradrenaline reuptake in the synaptic cleft, increasing its extracellular concentration. As a result, the drug increases alertness levels and enhances brain stimulation mechanisms, leading to better concentration, better motor coordination and better impulse control (COLI, 2016). The main rationale for using psychostimulants in these students was to compensate for the lack of sleep and increase concentration. (ANVISA, 2012)

In Brazil, the therapeutic use of methylphenidate was approved in 1998 (Ritalin) and in 2002 (Concerta) for the treatment of attention deficit hyperactivity disorder (ADHD). (WESTFALL, 2012). Methylphenidate is also indicated for the treatment of narcolepsy. This drug was included in the United Nations Convention on Psychotropic Substances in 1971, therefore, its use needs special control due to the risk of abuse and dependence . (CARNEIRO, 2013)

The use of methylphenidate by academics has increased over the years, and this growth is due to the effects that the drug can have on students, especially during the development of studies, although it is an over-the-counter drug for this purpose. Methylphenidate, used in the treatment of Attention Deficit Hyperactivity Disorder (ADHD) in diagnosed children and adolescents, affects the central nervous system (CNS). In everyday school life, some studies report that the drug has changed for the better in studies, but long-term use can pose health risks. (BIRTH, 2019)

The marketing of methylphenidate in Brazil is controlled, with limited use and because it is harmless in terms of side effects, some authors believe that limited use is unnecessary. However, using the drug without professional supervision can lead to consequences such as masking evolving diseases . (TOLENTINO, 2019)

Recent studies show that most users who do not have a clinical indication for the use of methylphenidate are those who wish to take part in public and university entrance examinations and university students. (COLI, 2016)

When off- label use (i.e., indication by a technical assistant other than those indicated in the package leaflet) is periodically used, it is common to use drugs for purposes other than medical diagnosis, in This process is known as "pharmaceutical chemistry" where the human ability to modify conditions, for example by increasing the dose of a drug taken by a healthy individual to improve performance. (BIRTH, 2019)

the increase in Ritalin consumption is the existence of deviations from the norm of use, as occurs in healthy individuals who seek, through the drug, to increase their

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focus of verisimilitude and even reduce their body weight. due to side effects such as decreased appetite. (COLI, 2016)

The enhancement of cognitive performance has led university students to indiscriminate drug consumption. In Brazil, this practice has been called “instrumental use of medicines”, “drugs to boost the brain”, “cosmetic neurology”, “brain doping” and “intelligence drugs”. (COLI, 2016)

Ritalin® (methylphenidate) is important for regulating attention, prevents distracting stimuli, thoughts that are irrelevant, helps to increase focus and attention, increases the ability to stay awake for long periods and these effects cannot be produced in the healthy organism. (BIRTH, 2019)

The drug's mechanism of action is not yet fully understood, it is known that there is an action related to the dopaminergic and noradrenergic systems , in regions of the central nervous system (CNS), cerebral cortex, adrenergic receptors in regions of the CNS, in the posterior cingulate / frontal cortex, responsible for attention. (TOLENTINO, 2019)

Abuse and often over-the-counter drugs are on the rise and are gaining ground among young people to boost their academic performance when they feel more focused and prepared. Among this group of individuals, the authors suggest that medical students are one of the main groups most susceptible to substance abuse. (NUNES, 2020)

The mechanism of action of these substances is similar to that of illegal drugs (eg cocaine), based on an increase in the level of dopaminergic activity. WILLIANS et al. The prevalence of over-the-counter methylphenidate use was 23% among adolescents who abuse other drugs.

Trafficking in methylphenidate has been compared to highly addictive drugs such as morphine, and it strengthens the evidence for a link between the harmful effects of illegal drugs and the abuse of these drugs. (TARCISIO, 2011)

In recent years, the use of over-the-counter psychostimulants such as methylphenidate has increased performance in several areas of study and work. Of the students who used over-the-counter methylphenidate, most used it during a high-stress period in college.

Also, people who want to lose weight use methylphenidate inappropriately, due to the side effect of reducing appetite. This and other incorrect markings can be favored because these drugs are part of the pharmacopoeia, in Brazil and in other countries, and therefore, because they are released for medical purposes, they are misinterpreted by the public as "safer" than illicit ones. perhaps for this reason, low awareness of harm is considered a risk factor for drug use without proper prescription. (TARCISIO, 2011)

The effects of the changes in the heart were only one-time and transient, where, soon after administration, a slight increase in blood pressure, heart rate and respiratory rate could be observed, but these changes do not last long. (CAMPOS, 2020)

The use of drugs for enhancement purposes has been a growing concern in the field of bioethics. Some authors claim that this practice is a form of stealing, it is not natural and is related to drug abuse. (COLI, 2016)

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In studies carried out in the United States of America (USA), in some schools a percentage of 3 out of every 100 students uses the medication Ritalin®, even without having to use it (NUNES, 2020)

The drug's mechanism of action is not fully understood, it is known that there is an action related to the dopaminergic and noradrenergic systems , in the CNS regions, cerebral cortex, adrenergic receptors in the nervous system regions, in the posterior/prefrontal parietal cortex, who are responsible for attention . (NUNES, 2020)

There are reports of individuals who became dependent on the drug, as well as illicit ones, in addition to reporting that after the pause in taking the medication, they partially lost the brain's storage capacity, which leads us to think that even though psychostimulant drugs are prescribed , may lead to future losses. Reinforcing the idea that access to this medication should be more difficult.

It is necessary to be careful with the practice of self-medication, as it can trigger dependence, the risks of anaphylactic reactions, making its use dangerous (MARINHO ET AL., 2017), it is observed that self-medication goes beyond dispensing over a counter. pharmacy without presenting a medical prescription (PIRES FREITAS et al., 2017).

The benefits of Ritalin use have shown effects on memory and reasoning ability, which has led to increased use of Ritalin for learning purposes. The drug's demonstrated improvement in performance enhancement also appeals to healthy people seeking better care,

Ritalin® is considered a drug that is considered a black box and that in the long term can bring harm to health (ORTEGA et al., 2010).

It is during academic life that the individual experiences all kinds of pressure from study routines, teachers, entry into professional life, which contributes to self-medication, especially from psychotropic substances.

In the USA, a study carried out with medical students in 2013 pointed out that (15%) use course stimulants, (83%) use them especially for good academic performance (MORGAM et al., 2017).

In Brazil, Ritalin® is used for several treatments parallel to those that really should be used, such as depression, but without any specific criteria that prove the effectiveness of its action, over the years students began to use it, the effects of interactions also can lead to dependence on the individual's metabolism. Because they are drugs that improve the functioning of cognitive function.

A medical student in the year 2020, identity not revealed, in an account of the use of Ritalin®, vented about the cons of using the medication.

> “I was diagnosed with ADHD in 2015, I had neuro exams and follow-up with a Neuropsychologist. I started with 10mg Ritalin®, at first it gave me energy and a lot of focus, with time it didn't work anymore. I switched to 20mg Ritalin® and did not adapt to it because the compositions were different” Unknown author, 2020.

With each milligram that is increased, there are also different compositions, for the body to adapt to the drug and the result that he expects can appear for that individual.

> “I started taking the 30mg, I didn't even blink with it, I felt gas, but the problem with Ritalin® is that in the first 8 hours you're pillaged and then you're

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> destroyed as if you'd been run over, you don't have the strength and feel a mental and physical exhaustion."

The peak of the drug happens in the first 8 hours, where it is running through the body and looking for immediate metabolism responses, but at its low, the body charges the bill of having to work double for 8 consecutive hours, bringing an unusual exhaustion, which leads individuals to amend one dose to another, which can end up leading to dependence.

> "As time went by, I started to get irritated, I started to have a panic crisis, I had an anxiety disorder, a disease that those who are already affected should not take neuro stimulants, because the chances of worsening the condition are real, I decided that I would not take it and that's when I saw and felt what they had warned me about Ritalin®, my brain became a "sponge", I couldn't think anymore, I don't even know how to stop to talk to a friend properly, it's as if my brain only worked with medication, I had symptoms similar to those of people who stop using drugs, I start to shake, I start to be aggressive, I had anxiety attacks that almost led me to take my life, I even went to the ICU."

The above reports are from a real person, who was diagnosed with ADHD, had a prescription to take the medication and even then suffered from all the cons of taking a drug tarja preta, which could have caused her death, because a prescription is not enough, the individual must be seen as a whole, the use of Ritalin®, along with other medications such as for anxiety are prohibited, and what to do with a patient who "needs" a neurostimulant, but has a comorbidity which correlated with the use of Ritalin ®, can cause tragedies.

> "Every year I lived the dilemma between taking Ritalin® and curing my anxiety, at the end of last year 2020, my doctor who should be the person to help me deal with my demands, told me to choose between Ritalin®, and the anxiety medicine, because ENEM was coming, and I couldn't waste time, I chose Ritalin ® out of fear, and I'm still her hostage. "

Bad professionals exist everywhere, it is up to the patient to choose which care he wants to have to keep himself in balance, the student's choice was to fulfill a dream that is to pass in medicine, even if it cost her life, but not it should be like that, people had to have access to dignified treatment, and that their lives matter to those who treat them.

The unbridled use of this substance is a clear example of exaggeration, demonstrated in many ways. These drugs are legally used by prescription to treat microbiological disorders such as attention deficit hyperactivity disorder (ADHD).

Another type of use of methylphenidate (MPH) has been observed by healthy subjects studying its cognitive and learning effects, access to this drug is, in many cases, from school friends also using this substance or directly from the doctor who used it. prescribes, based on diagnoses made by the parents themselves. (SILVA, 2020)

Research recently released by the State University of Rio de Janeiro (UERJ) shows an increase of almost 800% in the consumption of methylphenidate,

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commercially known as Ritalin, from 2003 to 2012. The survey was carried out by psychologist Denise Barros, who studied the consumption of the drug in the country in his doctoral thesis. (JULIA CONTEDRAUZIO VARELLA)

The consequences of using methylphenidate without a medical prescription, or even without follow-up by a multidisciplinary team to treat the Disorder for which the medication is indicated, are abuse and dependence, masking evolutionary diseases, especially mental health ones such as anxiety and anxiety syndrome. panic, decreased appetite, decreased sleep, leading to reduced sleep quality, punctual and transient cardiovascular problems, such as increased systolic pressure, heart and respiratory rate, if the individual already has preexisting heart problems, it can lead to death.

In addition to what was exposed in the interview, that the damage can also be neurological, the drug in question is of great value to the right people, being accompanied by qualified professionals, with a fine line between the correct treatment and the consequences already mentioned.

The use of methylphenidate, indiscriminately, without prescriptions, without adequate treatment, with increasing doses without supervision, is a public health danger, already reported and scientifically proven, lives are losing value, for goals, money, and what it leads to reflection on care for others, and medical-patient care, in addition to universities that can create programs to help these students who have more difficulties during the graduation period.

Conclusion

One of the most used drugs for this purpose is methylphenidate hydrochloride, a drug from the amphetamine group, commercially known as Concerta® , Ritalin® and Ritalin LA®. This substance acts as a Central Nervous System stimulant, as it is a potent inhibitor of dopamine and noradrenaline reuptake in the synaptic cleft, increasing their extracellular levels.

The long-term, unattended use of these medications, with increased doses without adequate monitoring, is potentially dangerous to the health of the individual who takes the medication.

Some of the main effects experienced by CNS stimulants include increased concentration and memory, faster thinking, and decreased sleep at night.

The over-the-counter use of this drug has been increasing, and has grown alarmingly to the point of being compared with illicit drug trafficking, which makes us reflect that if the medication is difficult to access, the person needs treatment with a doctor. expert and if people are looking for a shortcut, the problem is explicit.

According to the drug leaflet, the main occurrences after consumption are of potential **Abuse and Dependence "** . Long-term abuse can lead to heightened tolerance and psychological dependence with varying degrees of abnormal behavior. Overt psychotic episodes may occur, especially with parenteral abuse. Careful supervision is needed during withdrawal from abusive use because severe depression can occur. Withdrawal after long-term therapeutic use may unmask symptoms of the underlying disorder that may require follow-up.” **Cardiovascular Diseases** “CNS stimulants can increase heart rate and blood pressure; in pediatric patients, the mean increase observed in heart rate was 3 to 6 bpm and blood pressure was 2 to 4 mm Hg.

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Use with caution in patients with hypertension, heart failure, recent AMI, ventricular arrhythmia, and other conditions" **Psychiatric Disorders** "use with caution in patients with preexisting psychosis (may exacerbate symptoms of behavior and thinking disorder) or bipolar disorder (may induce an episode mixed/manic). New onset psychosis or mania may occur with use of stimulants " **Seizure Disorders** ": Use with caution in patients with a history of a seizure disorder; may lower the seizure threshold, leading to new onset or seizure disruption activity. Discontinue in the presence of seizures." **Tourette's Syndrome/Tics** : "Use with caution in patients with Tourette's syndrome or other tic disorders. Stimulants can exacerbate tics (motor and phonic) and Tourette's syndrome; however, evidence demonstrating increased tics is limited." (Methylphenidate : Drug information - 2021)

The medication package insert is very clear about the medical follow-up and the prescription for the use of Methylphenidate medication, as there are several possibilities for a person who is not followed-up to have a bad outcome when using the medication without a medical prescription.

A problem also encountered was that of specialists who, despite having all the power to care for and treat people who seek them, treat them as just a sum to be paid at the end of the consultation and not as a whole, in terms of those with health problems. mental health, who cannot mix drugs with Ritalin®, and tell them to choose between one or the other, instead of looking for a solution to that patient's problem.

Therefore, it is possible to conclude that the use of Ritalin® indefinitely causes neurological, physical and mental consequences in the people who consume them, making us think about the intake and sale of this medication to audiences such as university students, and that the prescription and monitoring correct doctor are indispensable.

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