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Over-The-Counter Drug Abuse: Problems and Prevention



Leonelli Carmen and Morani Aashish*

Lake Erie College of Osteopathic Medicine, School of Pharmacy, Bradenton, Florida, USA

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***Corresponding author:** Aashish Morani, Lake Erie College of Osteopathic Medicine, School of Pharmacy, Bradenton, Florida, USA, Tel: 941-782-5655; Fax: 941 782-5725; Email: amorani@lecom.edu

Abstract

Over-the-counter drug abuse has been overshadowed by the current opioid epidemic sweeping across the US. This article highlights three topics that are problematic in ensuring safe over-the-counter medication use. Ease of access, the current opioid epidemic, and lack of education, all of which can lead to abuse. Drug monitoring and societal education are critical steps in improving knowledge to prevent misuse of medications.

Keywords: Over-the-counter; Abuse; Drug-interaction; Education; Monitoring; Dextromethorphan; Diphenhydramine

Abbreviations: OTC: Over-the-counter; NPDS: National Poison Data System; ECG: Electrocardiogram; CYP2D6: Cytochrome P450 Enzyme 2D6; SSRI: Selective Serotonin Reuptake Inhibitor; CDC: Center for Disease Control and Prevention

Introduction

Drug abuse is currently at an alarming level in the United States. The CDC reported that heroin and opioid-related deaths increased five times from 1999 to 2016 [1]. This dramatic increase in illicit and prescription drug abuse raises concern of how and why these potentially lethal drugs are becoming more common and accessible. This article will focus on risk factors that cause today's youth to become more prone to drug abuse. In addition, preventative methods will be suggested that focus on decreasing exposure and increasing knowledge on the seriousness of both OTC and prescription drugs.

Problem 1: Ease of Access

Various OTC medications can produce hallucinogenic and euphoric effects if taken in excessive doses. Coupled with the development of tolerance after repeated abuse, these easily accessible medications can wind up being lethal. A commonly misused and misunderstood medication, Diphenhydramine (Benadryl), is used to treat allergies, motion sickness, and insomnia. If taken in excess, Diphenhydramine can act as a central nervous system stimulant, producing euphoric effects [1]. Many consumers purchase Diphenhydramine when experiencing insomnia. After responding successfully to initial treatments, tolerance can develop, requiring higher doses to produce equal results. A dose of Diphenhydramine should be taken at 25-50 milligrams to treat insomnia, which may sometimes produce side effects such as dry mouth, constipation,

and rapid heart rate. When taken at doses around 300mg, confusion, hallucinations, and ECG changes begin to occur [2]. As patients become dependent on Diphenhydramine to achieve adequate sleep, increases in dosage can often follow, leading to these problematic outcomes.

Dextromethorphan (DXM) is an active ingredient found in many cough and cold medications sold over-the-counter. In various ranges of excess doses, DXM produces effects that range from hallucinations and psychosis to out of body experiences [3]. According to National Institute on Drug Abuse, 6% of high school seniors had a history of abusing Dextromethorphan [4]. In addition to the dangers of Dextromethorphan abuse, most users are unaware of the drug's metabolism pathway. DXM is metabolized by a Cytochrome P450 enzyme, CYP2D6. Many different medications can interfere with CYP2D6's ability to break down Dextromethorphan, causing toxic levels. For example, patients taking Selective Serotonin Reuptake Inhibitors (SSRI's) while taking Dextromethorphan will experience increased levels of Dextromethorphan at a standard dose. Other common medications that can inhibit the metabolism of DXM are Amiodarone, Diphenhydramine (Benadryl), Ranitidine (Zantac), and Haloperidol (Haldol). Each year, 6000 visits to the emergency room are due to Dextromethorphan use, but not due to abuse [5]. This simple lack of understanding of Dextromethorphan's interactions has even proven to be dangerous in people who take this medication with the proper intention.

Problem 2: The Opioid Epidemic

The National Institute on Drug Abuse reports that more than 115 Americans die each day from an Opioid overdose [6]. In addition, between 21-29% of patients who were prescribed opioids for chronic pain end up misusing them? The current opioid overdose epidemic, which has increased 30% from July 2016 to September 2017 [4], can potentially be correlated with OTC medications acting as a “gateway drugs.” According to the National Poison Data System (NPDS), after tripling from 2000-2006, DXM abuse has since decreased. It is possible that there has been a “shift” in popularity in drugs of abuse from OTC medications to Opioids. The current opioid epidemic may have altered the public’s perception in understanding the dangers that OTC medications can cause.

Problem 3: Need to Educate the Youth

It is non-pragmatic to expect informed drug-use decision making without providing consistent education to the present-day youth, thus, resulting into increased drug overdoses and death. A survey taken in 2018 involving 309 middle school and high school students estimated the knowledge of OTC medications. The results from this study strongly indicated lack of knowledge in understanding basic questions regarding drug indications and side effects (59% and 67% of students respectively answered negative) [7]. This unfamiliarity to dangers of drugs of abuse, especially, the ones available OTC, significantly enhances the vulnerability of an adolescent to a risk for poor drug decision making. Therefore, it is critical to educate the youth on the consequences of OTC drug abuse. Such education could potentially benefit them as the knowledge gained will most likely be carried into their college years.

Recommendation 1: Closer Monitoring and Proper Counseling

As discussed, Diphenhydramine and Dextromethorphan are two common OTC ingredients found in a variety of allergy, cough and cold medications. The ease of access and potential toxicities of these medications place pharmacists in an extremely important position. The pharmacist is the “last line” of proper education and counseling before the customer purchases a medication and is educated on warnings, adverse effects, and potential drug interactions. In a retail setting, pharmacists are tasked with an extensive workload from medication verification to vaccination administration. The workload that a pharmacist is occupied with may hinder his or her ability to tend to customers looking for guidance when selecting OTC medications. In order for a pharmacist to be more readily available to address a customer’s needs, a more balanced work load should be addressed. Rather than prioritizing the quantity of prescriptions filled, perhaps

pharmacy corporations should shift the pharmacy’s focus to a more balanced work flow, particularly spending more time on patient interaction.

Recommendation 2: Education

Adolescents are extremely vulnerable to peer pressure. Incorporating substance abuse courses into the high school curriculum would give students the opportunity to learn the dangers of drugs before later exposure. As many students progress to college after high school, a more educated foundation regarding drug knowledge will help students to make safe decisions on medication use. In addition, this could potentially lead to a decrease in opioid and illicit drug use.

Conclusion

Preventing misuse and abuse of medications, particularly OTC drugs, is a huge task needed to be undertaken not only at an individual level, but at a community level as well, specifically with educators and health care providers. There is an urgent need to provide adolescents with basic OTC drug knowledge during their high school years. Such tasks have potential to prevent misuse of drugs and encourage proper decision making amongst youths. The role of pharmacists is paramount in drug counseling, especially in regards to therapeutic doses and drug interactions commonly observed among OTC medications. Such counseling can prevent misuse of drugs among youth, and can avoid drug-drug interactions among regular patients.

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References

1. (2017) Centers for Disease Control and Prevention. National Center for Injury Prevention and Control, USA.
2. Radovanovic D, Meier PJ, Guirguis M, Lorent JP, Kupferschmidt H (2000) ‘Dose Dependent Toxicity of Diphenhydramine Overdose. Hum Exp Toxicol 19(9): 489-495.
3. Center for Substance Abuse Research (Cesar).
4. Karami S, Major JM, Calderon S, McAninch JK (2017) Trends in Dextromethorphan Cough and Cold Products: 2000-2015 National Poison Data System Intentional Abuse Exposure Calls. Clinical Toxicology p. 1-8.
5. Mary Elizabeth May, Certified Specialist in Poison Control. Dextromethorphan. What’s the Problem? National Capital Poison Center, USA.
6. (2018) Opioid Overdose Crisis. National Institute on Drug Abuse.
7. Kelly T, Conn KM, Zak M (2018) Evaluation of Over the Counter Medication Knowledge and Literacy in Adolescent Students. Academic Pediatrics pp. 1876-2859.



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