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Ritalin, Ritalout

Sam Seneviratne & Frances Tennant

The Centre for Interdisciplinary Science, University of Leicester

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Abstract

This paper investigates the validity of the medical prescription, effects and antidote of Ritalin in the episode titled 'Timmy 2000' of the popular US animation series 'South Park' [1]. The TV show is seen to give some indication of what the desired effects and side effects may look like in children who are taking Ritalin. However, the diagnosis of the disorder, the specificity of a side effect and the effect of 3, 4-methylenedioxymethamphetamine (MDMA) acting as a quickly and effective antidote to Ritalin is wholly misrepresented.

Introduction

In the episode 'Timmy 2000', a wave of prescription drug abuse is seen at South Park as the doctor diagnoses an entire class with attention deficit disorder (ADD) thus prescribing Ritalin to them all [1]. After seeing the children unnecessarily hooked on the drug, a character called 'Chef' spikes the children's lemonade at a rock concert with an apparent antidote in the form of MDMA which saves them from their addiction. The antidote, known as Ritalout, seems to completely reverse the effects of Ritalin and bring the children back to normal cognitive functionality [1].

ADD diagnosis

During the show pupils at South Park Elementary decided to visit the local medical centre together in the hope of getting diagnosed with ADD. Another boy in their class called Timmy, had the condition and because of this, became exempt from any homework. During the visit the doctor carried out a diagnosis on all of the children at the same time, which followed their ability to listen to and answer correctly to questions on the book called 'The Great Gatsby'. This was read by the doctor from start to finish, in one sitting [1]. None of the children answered the questions correctly as they were all half asleep, due to assumed boredom. The doctor therefore diagnosed them all with ADD and instantly prescribed them with Ritalin. This however, does not reflect the standard diagnostics procedure for the condition in anyway.

In a usual diagnosis procedure each child would be examined separately and the doctor would first ask about symptoms and behaviours which are affecting everyday life, known as functional impairments [2]. They would also look into the family history of ADD diagnosis and they would then most likely be referred for further assessments in the form of one to one interviews with the child and parent. A physical examination is also likely to be undertaken [2, 3].

For a child to be officially diagnosed with ADD and prescribed the medication they must have at least 6 attention disorder symptoms and these must have been displayed for at least 6 months. Furthermore, symptoms must have occurred in more than two settings such as school and at home [3].

What is Ritalin?

Ritalin is a branded product of Methylphenidate which is used to treat the ADD [4]. It is also used as a cognitive enhancer and for recreational purposes [5]. Methylphenidate inhibits the norepinephrine and dopamine transporters which means an increase in the concentration of both norepinephrine and dopamine levels in the brain [5].

By keeping these levels high for long enough, children don't lose interest and get distracted as easily [6]. This is shown throughout the South Park episode as the students of the class sit silently and attentively, hanging on to every word if the teacher.

Ritalin side effects

In the episode a side effect of the drug is also mentioned by the doctor in the form of hallucinations. This is a true reported side effect of the drug in rare cases [7]. The side effect mentioned in the show by the doctor is extremely specific, citing that they may start to see pink Christina Aguilera monsters. These monsters are seen by Erik Cartman throughout the show as seen in the figure 1. This is not a side effect of Ritalin known to date. The most commonly known side effects of taking Ritalin, which aren't mentioned in the episode include trouble sleeping, stomach aches, loss of appetite, headaches and mood swings [4].



Figure 1) Visual hallucination of the Christina Aguilera monster described in South Park [1].

Ritalout as an antidote

In the episode it's explained that the antidotal drug for Ritalin is known as Ritalout. Although never verbally mentioned, MDMA is clearly written on the Ritalout container. In the episode it is mentioned that Ritalout is effective in combatting the effects of Ritalin. MDMA releases 5-hydroxytryptamine, norepinephrine and dopamine through their reuptake transporters, therefore increasing the concentration of these chemicals [5]. The Ritalout is administered into the lemonade at the concert the children are attending and after consuming a few mouthfuls they seem to have ceased from their

Ritalin induced frame of mind, thus back to normal cognitive functionality. This paper is assuming that the children are on the recommended dosage for Ritalin to give desired enhanced effects. In usual circumstances this is 5 mg twice daily upon initial prescription [7]. The same is assumed with the dosage for Ritalout, giving the desired enhanced effect. As Ritalout is a non-existent prescription drug and MDMA is illegal, there is no clinical recommendation in terms of quantity. Therefore we're assuming that the amount taken at the concert was enough to induce a supposedly full reversal from the effects of Ritalin.

It has been shown that when both drugs are taken together, neither cancel out the effects of one another [5]. Instead, the stimulative effects become enhanced as Ritalin increases norepinephrine and dopamine uptake inhibition [8] whereas MDMA induces the release levels of both chemicals [9], therefore culminating in a larger overall stimulative effect. Furthermore, the pharmacodynamics effect of what the drug does to the body and the pharmacokinetic effect of what the body does to the drug aren't altered when both drugs are taken in combination [5]. A major adverse side effect of taking both drugs at the same time is further increases in blood pressure and strain on the heart [5].

Conclusion

There is some similarity of the effects of the ADD drug on children and their resultant behaviour during the South Park episode, for instance their increased attention capabilities in class. However the diagnostic procedure, the described side effect of Ritalin and the effect of MDMA as a counteracting effect are factually incorrect and were most likely done for comical effect.

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