

Medical Marijuana, Illicit Marijuana and Mr. C

In late 2013, word came out that New York State was looking into legalizing medical marijuana for treatment of certain serious symptoms that arise from certain serious medical conditions. Among the symptoms and medical conditions to be included were muscle spasms in multiple sclerosis patients. Since multiple sclerosis is my specialty, both professionally and personally, I decided to write this article to help educate people about medical marijuana.

I. My Experience with Marijuana as a Street Drug

Until sometime in the recent past, I had had minimal experience with the world of marijuana. I know I had smelled something weird at several concerts that I went to when I was in college. My friends told me that it wasn't marijuana but rather "herb cigarettes." They told me that they were sold in a store in CollegeTown by a Ms. Jayne. One time, my friend asked if I could drive him to CollegeTown so he could get more "herb cigarettes." When we got there, my friend told me that he would go purchase them and that I should wait in the car. I thought "whatever" because I knew smoking was bad for you regardless of what you smoked and I didn't like the smell anyway.

When he got out of the car, he went into a place that didn't look so much like a store, but more like an alleyway that had several crates stacked up high so you couldn't really see it from the street. I remember thinking that Ms. Jayne would probably do more business if she put a sign in FRONT of the crates so people would know where to go to get herb cigarettes. In a few minutes, my friend came back out onto the street. He seemed happy when he got to the car. I could smell the herb cigarette smoke on him. I asked him how Ms. Jayne was. He said that she wasn't there but her friend Mary was. Then he started giggling. I asked him why he was giggling and he said he was just a happy guy. It was true. He was a happy guy. Eventually, he told me that Ms. Jayne was a drug dealer when she got arrested and that the "herb cigarettes" were actually marijuana.

Then there was also a time in high school when I was taking the 4 train up to the Bronx with some of my teammates for a baseball game in which my school was playing. I remember there was a guy on the train who was wearing a baseball cap who kept his thumb and forefinger pinched together while raising it to his mouth every once in awhile. It looked to me that he was practicing his grip for a circle change-up pitch but now that I think of it I think he might have been smoking marijuana. Especially since his ball cap said, "I Love Weed" with a little heart around it.

After realizing the degree of naïveté I had about marijuana, I knew I really had to learn more about marijuana and then, more specifically, about medical marijuana. I went online and found A LOT OF STUFF about marijuana. After sorting through things, I was able to tease out some valid scientific research on the topic and I learned quite a bit.

Additionally, I took a tour of multiple sites about marijuana that were more “experientially” oriented. This, I believe, set a better foundation for me to learn about medical marijuana.

II. Medical Marijuana Becomes a Medication in New York State

On July 14, 2014 the Compassionate Care Act to establish a comprehensive Medical Marijuana Program in New York State was signed by Gov. Cuomo. I was excited because I had a lot of patients with multiple sclerosis who had muscle spasms and a lot of unremitting pain that was not under good control with any of the available medications or implantable devices. The state had set up an online course to teach doctors how the drug worked, what its indications for use were, what the procedure was for prescribing it is and how it would be dispensed.

A. How the drug works

Marijuana has two active components in it, CBD (cannabidiol) and THC (tetrahydrocannabinol). CBD works at the muscle itself to reduce or eliminate the spasm while THC works at the brain by changing the way the mind interprets the pain signal coming from the sensory fibers that come from the muscle with the spasm going on. By adjusting the ratio of CBD to THC, hopefully the patient’s muscle spasms can be reduced or eliminated without causing any unwanted side effects such as lethargy or memory troubles.

B. The indications for using medical marijuana

In New York State, medical marijuana has been approved for the treatment of specific symptoms that can occur in specific serious medical conditions. The serious medical conditions are:

1. Cancer
2. Positive status for HIV or AIDS
3. Amyotrophic lateral sclerosis
4. Parkinson’s disease
5. Multiple sclerosis
6. Damage to the nervous tissue of the spinal cord with objective neurological indication of intractable spasticity
7. Inflammatory bowel disease
8. Huntington’s disease
9. Neuropathies

The associated symptoms are:

- A. Severe Nausea
- B. Severe or persistent muscle spasms
- C. Severe or chronic pain resulting in substantial limitation of function

D. Cachexia or wasting syndrome

This means that if you have any of the symptoms (A-D) that are caused by one or more of the medical conditions (1-9), you might be eligible for treatment with medical marijuana in New York State. Whether it is something that is right for you to use is up to you and your doctor.

C. What the procedure is for prescribing medical marijuana

If you and your doctor think that medical marijuana could be a valuable tool in your care, your doctor then gets the process moving.

1. Your doctor registers with the Program

First your doctor must have taken the New York State medical marijuana online course and pass the test before they can be registered with the Medical Marijuana Program (the Program) in New York State. After becoming registered, the doctor can start prescribing medical marijuana.

2. Your doctor registers you, as his or her patient, with the Program

Your doctor then goes online to register you as one of his or her patients in the Program. Along with the usual data items that are needed (name, birth date, address etc.) to register a patient, the doctor also has to enter the patient's New York State ID number. This is the ID number that is on your driver's license or, if you do not drive, on your New York State ID. After registering you as a patient in the Program, the doctor then goes to the web page that acts as the prescription for medical marijuana.

3. Your doctor writes your prescription

The data that were already entered on the registration page have to be re-entered on the prescription page. In the first section the doctor selects from a list the medical condition(s) and associated symptom(s) that the medical marijuana is needed for.

In the next section, the form of medical marijuana is selected.

As it stands now, there are three different ways that the medication can be delivered:

- Oral syrup
- Sub-lingual oil
- Vaporized

The syrup takes about 1½ hours to kick in and then usually lasts for 8-12 hours. It is good for people whose muscle spasms keep them from getting a good night's sleep. The oil takes about 45 minutes to start working and last 4-6 hours. My patients take it if they know what time of day their spasms usually come on but last for only a short while. The vaporized form works within 90 seconds and last for about 90 minutes. This form is great to use as a "rescue" for patients who have the sudden onset of severe/paralyzing muscle spasms that need to be broken right away.

D. How medical marijuana is dispensed

Once the prescription is completed, it gets printed out, signed and sent to the patient who then follows the directions on the prescription. It shows them how to register with the state, using their unique **certification number** which is on their prescription. After registering, they can find out where the dispensaries that have medical marijuana are located. Checking the price of a prescription at a dispensary is important for two reasons:

- Dispensaries charge different prices for a one month supply of the same prescription. My patients have told me prices ranging from \$60-\$120 for the same prescription.
- As of now, medical marijuana isn't covered by insurance.

III. My Experience with Marijuana as a Medication

After having enrolled about 25 patients in the Program, I have seen some excellent responses in terms of muscle spasm relief in my patients. Moreover, I have seen a great improvement in the quality of life for many of my patients. Some have been able to sleep through the night since their muscle spasms don't wake them anymore. People are getting restful sleep that they haven't had in years. One patient told me that she hasn't felt as good as she now does since before she had multiple sclerosis. Since she can get restful sleep, she can take care of her children better which is INCREDIBLY important in her life (she is a single mom) as well in the lives of her children..

Most of my patients have had much better relief than they had with any of the commonly prescribed medications (i.e. oral baclofen, baclofen pumps, tizanidine, etc.) It should be noted that not all of my patients have asked about trying medical marijuana since their spasms are well controlled with their current medication(s).

As time has passed, I've also learned another VERY important thing.

A LARGE percentage of my patients have already been using marijuana that they have been buying from drug dealers for a LOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOONG time.

(ed. note – After reading this far, I know some of you are thinking, “Did this guy just get off the boat, or what?” No. I've lived in New York City my entire life but I'm an eternal optimist (as is my wife). When we became doctors, we NEVER thought patients would lie to us since we are people trying to help them and we need to know as much as we can so we can give you the best care possible. Our biggest fear is that we might prescribe a

medicine for a person that could interact with whatever “drug” they are taking and kill them! So please don’t hold back - tell us doctor the things you put into your body so we can help or, at the very least, not hurt you.

Now back to the medical marijuana thing.)

I believe safety is the most important aspect of being able to prescribe medical marijuana.

Here’s why.

When I give a prescription for medical marijuana, I know that my patient will be getting:

- a specific medical marijuana,
- with a specific THC:CBD ratio,
- in a specific form,
- that has a specific time to onset and
- a specific duration of action and
- nothing else!

When I give a prescription for medical marijuana, I know that I am NOT giving them:

opium, hashish, heroin, phencyclidine (PCP), lysergic acid diethylamide (LSD), cocaine, crack cocaine, ecstasy, boot polish and other darkening agents, petroleum distillate, Ketamine, iron pieces or stones wrapped in cannabis resin, green grass, glass dust, sugar, mold/fungi, analogs of sildenafil (Viagra), formaldehyde, roach spray, alprazolam (Xanax) or any of a thousand other chemicals.

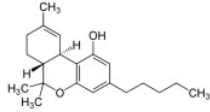
While some of these compounds might not kill you right away they are almost certain to make you sick in ways that could lead to death. The medical components in the medical marijuana in the New York State Medical Marijuana program are pure THC and CBD as nature designed them. They have a specific effect when they bind to certain receptors to produce specific results. However, they are drugs and like any drug I prescribe, I educate my patients about the possible known side effects of the drug. Additionally, I let them know if they have any side effect other than what I have told them about, they should stop taking the medication and then call me to discuss what happened.

IV. Synthetic Cannabinoids

This section covers the scariest part of the world of marijuana. The active ingredients /chemicals in medical marijuana are tetrahydrocannabinol and cannabidiol. A

second group of compounds, called synthetic cannabinoids, might chemically look like THC or CBD but they are completely different. First, let's talk about the science about what a drug is and how it works.

A drug, like THC, is a chemical that has a specific shape.



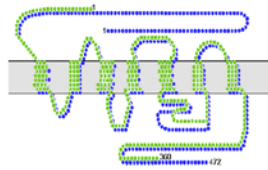
← THC molecule

(Source:

<https://upload.wikimedia.org/wikipedia/commons/4/4c/Tetrahydrocannabinol.svg>)

A drug/chemical binds to things called receptors. THC binds to the part of the cannabinoid receptor that is on the outside of the cell.

Outside of cell



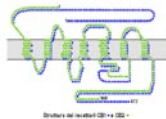
Inside of cell

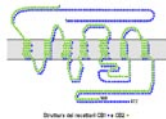

← cannabinoid receptor complex

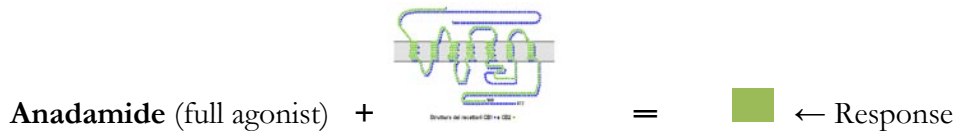
(Source:

https://upload.wikimedia.org/wikipedia/commons/c/c8/Cb1_cb2_structure.png)

Since the THC molecule binds to the cannabinoid receptor, the THC is called an “agonist” of the cannabinoid receptor. When an agonist binds to its receptor, the receptor causes changes to go on, inside the cell. These changes produce an effect that can cause changes in perceptions of sensations (like pain from muscle spasms) along with changes in memory, concentration and perception of time. As it turns out, the cannabinoid receptors that are in our bodies were not put there specifically for THC to bind to. The agonists that the receptor was designed for are a group of chemicals that our bodies make to lessen pains in our bodies (along with doing other things). That system is called the endocannabinoid system. These chemicals include molecules like anandamide, 2-Arachidonoylglycerol and 2-arachnidonoyl glyceryl ether. These molecules are “full agonists” at the cannabinoid 1 receptor (CB1) receptor. They bind to the receptor better and cause the cell to produce a stronger response. In the case of the endocannabinoid system, it will cause more potent pain relief/change in perception of sensations. This means that it only takes a small amount of these chemicals to “turn on” the cannabinoid receptor to do the full job that it was designed to do. As it turns out, THC is only a “partial agonist” of the THC cannabinoid receptors. This means that when the same amount of the THC binds to the receptor, the cell produces less of the change in perception of sensations, memory and concentration.



THC (partial agonist) +  =  ← Response

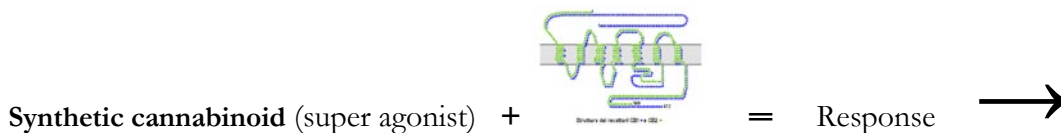


Here come the scientists

Scientists have been trying to help out diseases with cannabinoids for quite a while. The first published paper listed in the US National Library of Medicine-National Library of Medicine data base is from 1947 and is named “Structure-activity relationship (SAR) and pharmacological peculiarities of new synthetic congeners of tetrahydrocannabinol.” by biochemical researchers S. Loewe and R. Adam (Federation Proceedings. 1947;6(1):352. PMID: 20249597). The authors of this paper, and many other scientists at the time, were looking to make (or “synthesize”) chemicals similar to THC to use in controlling seizures in people with epilepsy. Since then, scientists have been trying to see if “synthetic” cannabinoid-receptor molecules can be used in the treatment of many other diseases, such as breast, prostate and gastric cancers.

Along with the medical pursuits of using THC to treat diseases, some people have decided to see if they could “synthesize” cannabinoid-receptor molecules, that could be a “full agonist” at the cannabinoid-receptor, to achieve more of the “pleasant” sensations they had while using the original “partial agonist” THC found in marijuana.

In fact, many people have gone on to create THC molecules that bind the THC receptors many times better than the regular human endocannabinoid THC does!



What does that mean?

I found an excellent scientific paper published in the journal Drug and Alcohol Dependence that explains what it means:

- *In-vitro* and animal *in-vivo* studies show that synthetic cannabinoids have pharmacological effects that are 2-100 times more potent than THC.
- Synthetic cannabinoids produce physiological and psychoactive effects similar to THC, but with greater intensity, resulting in medical and psychiatric emergencies.

The name of the paper is: Synthetic Cannabinoids: Epidemiology, Pharmacodynamics, and Clinical Implications by Marisol S. Castaneto, David A. Gorelick, Nathalie A. Desrosiers, Rebecca L. Hartman, Sandrine Pirard, and Marilyn A. Huestis and this is where you can read it:

[https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4253059/.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4253059/)

Here are some drug names:

K2, Spice Gold, Spice, Spice Diamond, Yucatan Fire, Solar Flare, K2 Summit, Genie, PEP Spice, Fire n' Ice, Bliss, Black Mamba, Bombay Blue, Zombie World, Bad-to-the-Bone, Blaze, Dark Night, Earthquake, Berry Blend, The Moon, G-Force, K2 Blonde, K2 Standard, Blueberry Haze, Dank, Demon Passion Smoke, Hawaiian Hybrid, Magma, Ninja, Ono Budz, Panama Red Ball, Puff, Sativah Herbal Smoke, Skunk, Ultra Chronic, Voodoo Spice and Aroma.

Here are some drug statistics.

In 2015 in New York State, more than 6,000 state residents were hospitalized due to use of synthetic cannabinoids, including 700 people in the Bronx.

Males accounted for 90% of these emergency room visits, and the median age for all patients was 37.

https://www.nysenate.gov/sites/default/files/state_of_synthetics_full_report.pdf

The numbers are getting worse every year.

V. Experiences with Marijuana and Other Drugs That I Have Had as a Doctor

Here are two vignettes of experiences I've had during my time in medicine.

Story #1

I had a patient that I was asked to see in the coronary care unit at the hospital. They told me that he had multiple sclerosis and that he was brought in by EMS the previous day. When I went to see him I found his chart and saw that he was only 22 years old. When I went to see him he gave me the details about why he had been brought to the emergency room.

He began by saying that he had multiple sclerosis and the biggest trouble he was dealing with was the bad muscle spasms that he had in his legs. All the medications he had been given by his doctor didn't help. His friend in an MS support group MS-er told him about using marijuana for muscle spasms. She had bought marijuana from a drug dealer and after she used it her spasms got a lot better. He asked her if she was scared about buying a drug from a drug dealer. She told him that she has a guy and this guy only sells good stuff.

So he decides to go meet with the drug dealer who didn't really look like the guy his friend had described. The dealer explained to him that the other dealer was busy with another deal – something about helping his daughter sell Girl Scout cookies. The patient said that he knew his friend wouldn't lie about her drug dealer being good and this other drug dealer was well dressed and seemed nice so he felt he could trust him.

So he told him that he wants some marijuana. The drug dealer told him, "Cool. I got regular marijuana that's good but if ya want I got some Gold Chronic and that's real good. It costs a little more but ain't that the way it is with good stuff?" The patient thought that he should get the Gold Chronic because the drug dealer told him it was better than the regular and he wanted the best thing for his spasms.

So he got his bag of marijuana and went home hoping to get some relief from his spasms. He rolled a joint like he saw in a video he found online. Then he took a drag and he didn't feel much so he took another drag and nothing happened so he smoked the rest of the joint. Then he said he felt a wave come over him that felt really "different" from anything he had felt before. Then he noticed that his heart was going really fast. Then he had a feeling like an elephant was sitting on his chest. That was the last thing he remembered before waking up in the emergency room after EMS brought him in.

It turns out that he had had a heart attack. The only reason he didn't die was because a friend who lived in the apartment below him heard the loud "thud" that he made when he collapsed. When she got up to his apartment she saw him on the floor. She smelled the smoke and then called 911. When the paramedics got there they saw that he didn't have a pulse so they started chest compressions and then had to shock him three times before they got his heart back into normal sinus rhythm. They did a tox screen in the emergency room which came back positive for THC, cocaine and amphetamines.

Story #2

I have taken care of patients who have had bad reactions to illegal drugs that were bought from drug dealers. They taught me a lot. However, the case that taught me the most was a patient on the psychiatry ward at the hospital where I was doing my psychiatry rotation. I was told "Mr. C" was admitted because he wanted to kill himself and that I should go and interview him. I went to the day room, a common area where the patients would hang out between their group sessions, and introduced myself to Mr. C. We sat down together and I started the interview. After asking him the opening line I had been practicing ("How are you doing today?") he leaned in close to me and quietly said to me the following:

"You look like a nice young doctor so I'm gonna save you some time. I don't wanna kill myself. I'm just a dealer and things were getting hot on the streets so I came to the ER and told them that I wanted to kill myself 'cuz when you say that, they have to admit you. I'm just stayin' here until things cool down."

Wow.

I didn't know what to do. Since I knew nothing about drugs or dealing drugs I didn't know how to proceed with the interview. He saw that I was confused so he sat with me for 40 minutes and gave me the most useful lecture that I ever got in medical school.

Here's what he told me:

There are no clean drug dealers.

The dealer might be a good person. He might dress fine and smell good, but that ain't got NOTHIN' to do with the drugs he's dealing. His stuff isn't clean because after he gets the dope from his supplier, he cuts the dope that he got with all kinds of <bad word for poop> so he could make more money than what he bought it for. And before

him, the supplier cut the dope with <bad word for poop> so he could make money after buying it from the distributor who cut the dope with <bad word for poop> so he could make money after the smuggler charges a huge “importing” fee for dope that he says is pure but was actually cut with <bad word for poop> before it even left the country that it came from. Plus, the stuff that the user to cut the drugs gets <bad word for poop>-ier and <bad word for poop>-ier at each stage.

“By the time you the drug gets to you,” he said pointing at my chest, “it ain’t nothing’ but <bad word for poop>. There ain’t no such thing as clean drugs or a clean drug dealer.”

After the first three weeks of the four week psychiatry rotation, and checking in with Mr. C every day, we had become friends. I came in on Monday morning of the fourth week and was told that Mr. C had been discharged over the weekend. My attending told me that he didn’t feel like killing himself anymore because of the good sessions that he had had with me. I felt pretty good after I went home that day.

When I came in the next morning, my attending told me that Mr. C had been brought back to the hospital last night after being shot near his apartment in South East DC. “A drug deal gone bad,” he said. “He was dead on arrival.”

The New York State Medical Marijuana program is clean because every step of the way is monitored. There is no synthetic cannabinoid in it or PCP or ground glass or formaldehyde or whatever. It is a drug - just like birth control pills or blood pressure medication or antidepressant medication - and it helps some people who had the quality of their lives stolen by neurological disease.

VI. My conclusions

Medical marijuana is a medication that can, and has helped many people with certain diseases.

Medical marijuana is a medication that is a specific medical marijuana, with a specific THC:CBD ratio, in a specific form, that has a specific time to onset and a specific duration of action.

Marijuana has two active components in it, CBD (cannabidiol) and THC (tetrahydrocannabinol). CBD works at the level of the muscle to reduce or eliminate the spasm while THC works at the level of the brain by changing the way the mind interprets the pain signal.

The New York State Medical Marijuana Program requires that the prescribing physician take a course to educate them about medical marijuana. That physician can then enroll his or her patients with specific disease(s) and with specific symptom(s) in the medical marijuana program.

In The New York State Medical Marijuana Program, the medication is used in specific THC:CBD ratios and delivery methods, to safely provide a way to help lessen certain debilitating symptoms, which current medications cannot, and to help improve the quality of a person's life.

There are many people with multiple sclerosis who have severe muscle spasms who have been using marijuana for years to get relief from their muscle spasms but who have had to buy marijuana from drug dealers.

There is a class of chemicals called "synthetic cannabinoids" which is not marijuana. Their chemical structure is similar to the chemical structure of THC and they work at the cannabinoid receptor but their potency and efficacy produce effects that are many times greater than those of THC and are life threatening.

Doctors and other health care providers have to recognize their own personal biases about medical marijuana. Doctors either don't know/recognize/respect the fact that their patients, in order to maintain some quality of life, are already using illicit marijuana.

The number of people having life threatening events from illicit drugs increases every year.

So is the number of people dying from illicit drugs.

Please remember what my friend taught me -

"There ain't no such thing as clean drugs or a clean drug dealer."