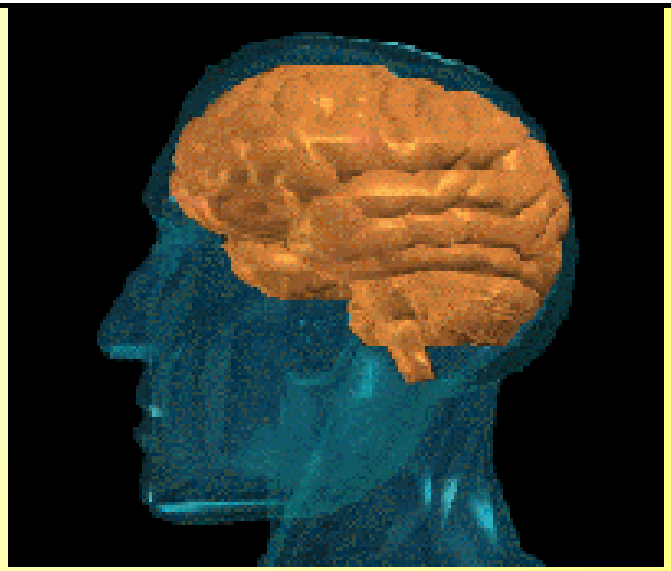

C.O.R.E. Medical Clinic, Inc.

Chapter I

Opioids and the Brain

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Introduction

C.O.R.E. is a medical facility interested in treating the whole person.

In order to effectively treat addiction, psychiatric and medical problems must be addressed.

C.O.R.E. staff will aid the patient in both identifying physical and mental health problems, as well as providing the resources necessary to treat these problems.

The patient must be vested in the process of identifying their illness, mental or physical, so that proper treatment may be administered.

Addiction vs. Dependence

It is important to know the difference between addiction and dependence.

Addiction:

1) There is a misuse of drugs, and
2) Continued misuse in spite of adverse consequences (e.g., job, family, health).

The common denominator of all patients coming into the program is they are misusing opioids. These opioids may be heroin, opium, prescribed opioids, or various opioids obtained over the internet or on the street.

Addiction vs. Dependence

Dependence:

When a patient is put on methadone, that patient becomes dependent on methadone. That is, if a patient does not get a dose of methadone daily, they will have withdrawal symptoms.

Dependence on methadone does not imply misuse of this medication. It does mean that it needs to be taken every day.

A patient on methadone should consider himself/herself dependent in the same way a diabetic would be dependent on insulin. More detail follows later.

Methadone: Historical Background

Methadone was discovered during World War II by the Germans who were attempting to find a long-acting pain killer to assist in war-related injuries. The fact that it has a longer duration of action and likely unique actions at the cellular membrane compared to other opioids, helped make it a unique treatment option for opioid addiction.

Methadone was synthesized in the 1930s and was used during the war. Its therapeutic uses in addiction were studied in the 1950s and 1960s. Its acceptance was a result of the dramatic success rate of individuals who were abusing short-acting opioids (compared to the abstinence model).

C.O.R.E. Medical Clinic is one of several clinics in Northern California who are licensed and able to dispense methadone for opioid addiction.

The Brain and Its Reward System:

There are over 100 billion neurons in the brain. Each cell has a body with tentacles that may connect to as many as 10,000 other neurons. Connection patterns are affected by drugs of abuse.

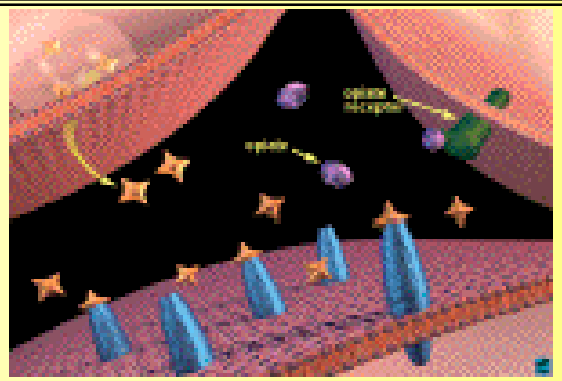
There are reward areas in the brain (nucleus accumbens, etc). This part of the brain tells us if something is positive or pleasurable. Reading, watching a favorite TV program, and sports are examples of activities that may activate the reward areas of the brain.

The Brain and Its Reward System…

All drugs that humans abuse have an effect on the reward areas of the brain. When a person takes an artificial opioid like heroin, it quickly enters the brain and powerfully stimulates the reward areas. Unlike natural pleasure-inducing compounds like endorphin, heroin is not immediately broken down.

This powerful connection at the receptor creates an intense high ("like ten orgasms" said one patient), leaving the user hoping/longing to re-experience the feeling. Unfortunately, the receptor begins to change and becomes less responsive to drugs that stimulate it. The reduced sensitivity and development of additional receptors leads to the requirement of more drug to achieve a "high" and to prevent withdrawal.

Brain Chemistry: After Opioid Use



Gradually, the endorphin system (nature's feel-good system) stops working or is greatly reduced in its effectiveness. As a result, what the person previously enjoyed gradually becomes less pleasurable or unimportant. Humor, joy, and pleasure are hard to experience.

Methadone and The Brain

In terms of the basic functions of the brain, methadone helps to restore normal functioning of important areas.

For example, women who abuse short-acting opioids often lose their menstrual cycle. After stabilization on methadone, their menstrual cycle usually returns.

Methadone and The Body

An individual using heroin or other opioids is prone to infection (cellulitis, abscesses, bronchitis, pneumonia, etc). When maintained on a proper dose of methadone, the body's ability to fight infections returns to normal.

Often irregular sleep patterns become regular and fluctuating levels of pain become more predictable and are in proportion to underlying medical conditions such as arthritis, low back problems, etc.

How The Body Metabolizes Methadone

When the patient takes methadone, it moves through the digestive tract and passes through the liver before it enters the blood stream.

The liver both metabolizes (breaks down) and stores methadone. Some people's livers are quite active (rapid metabolizers), which may prevent adequate brain levels of methadone. This has nothing to do with Hepatitis C or other medical conditions. Rather, some people just happen to have more active livers than others, which means they will require higher doses.

Knowledge is the key in stopping the stigma attached to the dose amount.

Proper Dose

The proper dose will cover the reward area brain receptors and correlates with returning the brain to normal basic functioning. The majority of patients require doses between 60 and 100 mg to achieve this. Slow metabolizers will require less and rapid metabolizers will require more.

It is important for the patient to tune into their body and try to find a dose that makes them feel most normal - the way they felt before they used opioids. For some, they may not remember what it feels like to be normal. These individuals must experiment with a dose that helps them achieve as close to a normal sleep cycle, appetite, energy level, etc. as possible.

Proper Dose Implementation

Many people may have a significant degree of opioid dependence and may go through withdrawal the first few days or weeks of treatment.

For safety reasons, the initial dose is low and is raised slowly to prevent a small risk of sudden death the first 1 - 2 weeks of treatment on methadone. This may relate to different levels of sensitivity to the breathing center of the brain. It may take a period several weeks (or longer, if higher doses are required) to stabilize on the proper dose of methadone.

Doses are adjusted up or down, usually by 5 or 10mg amounts, in a time frame of 3-5 days. It takes that amount of time to stabilize after each dose. C.O.R.E. may need to test a patient's blood level to assure a proper dose level.

Proper Dose Conclusion:

It is important for the patient to communicate with their counselor and medical staff to help achieve the proper dose.

Once the brain stabilizes and functions more normally, it frees up the human potential to work in counseling on the recovery process.

We all have flaws. With a biologically stable brain, the patient can better address these. It is this combined biological and counseling process provided by C.O.R.E. which will aid the patient in identifying and dealing with their weaknesses so they may grow and mature. This enhances one's recovery.

Tapering Off Of Methadone

There are two phases when tapering off methadone and attempting to return the brain to normal without methadone.

First Phase

The receptors in the brain may adjust more readily when the maintenance dose is lowered to about half **or** into the 30-50mg range. The brain may be getting rid of extra receptors.

Second Phase

This is the harder of the 2 phases for the brain. Many patients relapse during this phase, without understanding why, which is demoralizing and a great tragedy, especially if one has been doing well on therapeutic doses of methadone.

Tapering Off Of Methadone…

Second Phase (Continued)

When a patient comes down further in dose, their endorphin system must kick in or they will develop **Endorphin Deficiency Syndrome**.

The endorphin system may or may not recover. Patients must anticipate this phase and must participate in activity that stimulates the endorphins to maximize the likelihood of endorphin recovery (e.g., exercise, proper diet, practicing humor, developing hobbies and interests, attending to spiritual needs, massage, acupuncture).

Patients should consult their counselor and medical staff for details.

Endorphin Deficiency Syndrome

We currently do not have the technology available to measure endorphin function, but we know from clinical experience that the incidence of Endorphin Deficiency Syndrome is quite high, perhaps as high as 90 - 95%. We feel this is a major contributor to the high incidence of relapse in opioid addictions.

During dose reduction, it is extremely important to monitor for symptoms of endorphin deficiency. The most common symptoms are:

- Return of opioid craving or opioid hunger
- 'Dope' dreams
- Drop in level of overall functioning
- Lack of motivation or desire
- Depression
- Insomnia
- Increase in body aches and pains
- Loss of sense of humor or feelings of pleasure
- Loss of interest in things previously enjoyed

Medication Side Effects

All medications have some side effects in some people. Methadone is no exception, but on a comparative basis it is remarkably safe and low in side effects.

Methadone has been used and carefully studied for over 30 years. It does **not** damage bones, the liver, or other parts of the body as some unfortunate myths have perpetuated. The evidence is quite the contrary, with improved overall health once an individual stops abusing opioids and receives methadone treatment.

It is relatively safe during pregnancy, with babies doing better compared to babies born to other opioid dependent mothers not receiving methadone. The abstinence syndrome for the baby is relatively mild and easily managed by the hospital medical staff.

Medication Side Effects

Joint stiffness:

Some patients complain about joint stiffness, usually in the morning. This likely relates to some fluid retention that is a side effect of methadone. Methadone does not harm bones or tissues. This is an old myth with no scientific support.

Constipation:

This is the most common side effect of methadone. Drinking 2 to 4 glasses of water a day, a diet high in fiber (bran, fruit and vegetables), and moderate exercise usually treats this side effect. Constipation is often dose related. Lowering the dose can help. Consult the medical staff if constipation does not respond to these recommendations.

Medication Side Effects Continued...

Drug - drug interactions: (Increased sensitivity)

Taking more than one medication may influence the effects or side effects of the other medications. Many medications have sedation as a side effect (e.g., antidepressants, muscle relaxants, and tranquillizers). Sedating medications can cause a person to appear to be under the influence when mixed with methadone. Each patient must insure they are alert, coordinated, and well oriented before driving or operating machinery.

Mixed medication -Potential Lethal Combination:

Mixing methadone with some medications such as benzodiazepines (e.g., valium, xanax, ativan, klonopin) may cause serious reactions. If mixed together, they can slow or stop breathing, resulting in serious medical complications or death.

Medication Side Effects Continued...

Drug - drug interactions: Conclusion

It is important that patients consult with their doctor or C.O.R.E. medical staff when they are prescribed other medications. Always report to your counselor other prescribed medications so they can be added to your chart.

Insomnia:

Insomnia is a common medical problem and is common while adjusting to the right dose of methadone. Dose adjustments often treat this problem. If insomnia persists, this may be a symptom of depression or other psychiatric/medical disorders.

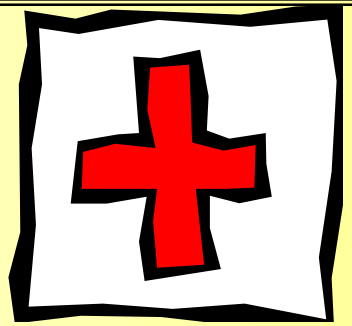
Dual Diagnosis: Psychiatric Disorders

Many patients began to use opioids as a way to self-medicate psychiatric disorders or medical problems.

Psychiatric disorders:

Opioids are often used to self-medicate problems such as anxiety and/or depression. It is important that patients recognize their conditions and seek proper treatment through the direction of their doctor or the C.O.R.E. medical staff.

Dual Diagnosis: Medical Problems



Contaminated drugs and/or sharing needles are extremely dangerous and have serious consequences. Viruses such as HIV and Hepatitis B and C are spread through sharing needles. Although bleaching the needle between uses may help reduce the risk of spreading diseases, it is not 100% effective.

HIV/STD's:

Safe sex is vital to disease prevention. C.O.R.E. provides condoms and information to reduce risks at each clinic.

Dual Diagnosis: Medical Problems…

Hepatitis C:

Hepatitis C is very common in IV drug users. Anyone who has ever shared a needle is at risk for having Hepatitis C. It can lead to liver diseases such as cirrhosis or cancer.

Patients infected with Hepatitis C should practice safe sex and not share needles. There is risk of re-infection and passing the virus to others with needle sharing.

See the C.O.R.E. medical staff team for information on current Hepatitis C treatment.

Dual Diagnosis: Multi-Drug Use:

It is not uncommon for our patients to have multiple drug problems:

Alcohol:

Alcohol is toxic to tissues in the body and causes brain and liver damage. Patients who are Hepatitis C positive should refrain from consuming alcohol for it can speed up the rate of liver and other complications.

Benzodiazepines/Prescribed Medications:

Benzodiazepines and other prescribed medications may be lethal when mixed with methadone. As stated previously, mixing benzodiazepines can cause one to stop breathing.

Also, as stated previously, patients should inform their C.O.R.E. counselor and/or medical staff if they are taking other medication(s).

Dual Diagnosis: Multi-Drug Use…

Stimulants:

Stimulants are very addictive. Cocaine and methamphetamines cause a number of psychiatric and physical problems. Psychiatric disorders such as depression, anxiety, panic attacks, and paranoia are common among stimulant abusers.

Stimulants can cut off the blood supply to the brain and heart, causing strokes or heart attacks. Stimulant groups are important and may be available at each C.O.R.E. location.

Urinalysis

Urinalysis testing is done monthly on a random basis. C.O.R.E. understands this process is time consuming to its patients.

Urinalysis testing is imperative to the patient's safety. As stated before, severe problems occur when medications are mixed, prescriptive or otherwise. The urinalysis tests for benzodiazepines, Methadone, Opioids and stimulants.

Urinalysis...

Oftentimes, stigma or shame prevents a patient from telling their counselor of illicit drug use for fear of judgment.

C.O.R.E. and its staff are not here to judge - they are here to help. By identifying the problem through UA testing, proper treatment is more likely to occur.

Methadone Advocacy Organizations

There are two main methadone advocacy groups:

- ✓ Methadone As A Legitimate Treatment Association (MALTA)
- ✓ California Association of Methadone Patients (CAMP)

These two advocacy groups were developed as a way to bring the message to the public that methadone is a legitimate treatment.

Stigma is a reality. MALTA and CAMP provide documented effectiveness of opioid-replacement treatment and stand up to political bodies though the networking of people. Contact your counselor for additional information.

Conclusion

C.O.R.E. is a medical facility interested in treating the whole person. C.O.R.E. will provide many resources necessary for the patient to achieve a healthy recovery.

It is necessary for the patient to be active in their treatment in order for the treatment to work.

There are regular workshops on “Opioids and the Brain” , presented by Dr. Stenson on the third Wednesday of every month at 11:00 a.m. These are open to all and are helpful to staff, patients, family, and the community. These workshops are interactive and enrich attendees’ knowledge of opioid dependence and its evolving treatment, including information on Buprenorphine.