The latest in addiction medicine: What every nurse needs to know

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Addiction Medicine

“Into the Arms of Morpheus” painting by 1889
• Midnight in Soho nineteen eighty four
• Fixing in doorways, opium slaves
• Poppies for young men, such bitter trade
• All of those young lives betrayed
• All for a children's crusade

-Sting
Addiction

What is Addiction?
• Addiction is a primary, chronic disease of brain reward, motivation, memory and related circuitry.
• Dysfunction in these circuits leads to characteristic biological, psychological, social and spiritual manifestations.
• This is reflected in an individual pathologically pursuing reward and/or relief by substance use and other behaviors.
Like other chronic diseases, addiction often involves cycles of relapse and remission.
Addiction is characterized by:

• An inability to consistently abstain
• Impaired control
• Cravings
• NO insight into the problem
Addiction: The DSM V Definition

- Addiction terms of abuse and dependence are no longer used
- Addiction is now called a substance use disorder
- Classified as mild moderate or severe
Addiction as Brain Disease
Reward Circuitry in the Brain

- Your brain is designed to motivate you to survive.
- Your brain gives you rewards in the form of a chemical called **dopamine**.
- Dopamine is one of the major chemicals that makes you feel good after a good meal or after you have had a wonderful night of making love.
- Reward centers in addiction become damaged.
Functionally...

Dopamine D2 Receptors are Decreased by Addiction
Addiction Impairs Cellular Function

- Decreased brain metabolism
- PET scans show reduced areas of metabolism in the brain in those suffering from addiction compared with controls
- PET show reduced areas of metabolism in the heart when someone suffers from heart disease
All Roads Lead to Dopamine

- Every drug of abuse acts on the nucleus accumbens in the brain
- Every drug of abuse floods the brain with dopamine
- Over time, the brain reacts to this overstimulation by reducing the number of dopamine receptors in a process called down regulation
Amphetamine and Cocaine

Are rewarding because:

• They act on the dopamine transporter to elevate nucleus accumbens dopamine levels
Nicotine

Is rewarding because it acts on nicotinic cholinergic receptors in the mesolimbic system and that results in increased dopamine in the nucleus accumbens.
Heroin and Morphine

Are rewarding because

• They inhibit GABAergic cells that normally hold the mesolimbic dopamine system under inhibitory control (they essentially take the breaks off dopamine inhibition)

• They also inhibit output neurons of the ventral tegmental system … also increasing the dopamine concentration
Ethanol and Cannabis

Increase the firing of the mesolimbic dopamine system
Addiction and the Impact on Frontal Lobe Function

- Substances of abuse alter the function of the frontal lobes
- This results in impaired judgment, poor decision making, impulsivity and impaired inhibitions
Addiction and Physical Traumatic Injury: They are Related!

More than 90% of patients who sustain a major injury while under the influence of alcohol or drugs as evidenced by a toxicology screen have a substance use disorder.

NURSES CAN MAKE A HUGE DIFFERENCE HERE
Case Study

• You are a nurse working the night shift on a medical floor

• Your newest admission is a 44 year old female admitted for endocarditis related to intravenous drug use

• Since her admission she has been demanding more opioids and threatening to leave the hospital

• Her behavior is frustrating for you and the other nurses

• You do not know how to handle her requests for more opioids
Key Nursing Approaches

1. Establish trust.
2. Educate the person about the fact that addiction is an acquired disease of the brain and that those changes to the brain can strongly drive their choices.
3. Offer hope. With treatment and abstinence, the brain will in most cases heal, although it will always be sensitive to drugs of abuse.
4. Know the risks of drugs of abuse used by your patients: signs of a pending opiate overdose versus signs of withdrawal.

5. Try to secure expert care for those suffering from addictions from a board certified addiction specialist if at all possible for those in hospital.

Patients with addiction need expert care in the same way that an individual with a compound fracture needs an orthopedic surgeon when they are admitted to hospital.
In Summary

- Nurses deal with clients who suffer from addiction everyday
- Addiction effects every nursing practice
- People who suffer from addiction can be very challenging
- It is sometimes difficult to understand their behaviors
- The latest research is showing us that addiction is an acquired organic brain disease
- There are profound changes to the brain that influence the choices people make and that fuels the compulsive behavior that defines addiction
- Patients with severe addictions need expert care
Canadian Resources

• Canadian Centre on Substance Abuse
  http://www.ccsa.ca/eng/Pages/default.aspx

• Canadian Federation of Mental Health Nurses
  http://cfmhn.ca/

• Problematic substance use by nurses (CNA, 2009)

• Canadian Journal of Addiction  http://www.csam-smca.org/canadian-journal-of-addiction/
Additional Resources

- National Institute on Drug Abuse (US) [www.drugabuse.gov](http://www.drugabuse.gov) (Nora Volkow)
- Journals
  - American Society of Addiction Medicine
  - Journal of Addiction Medicine
  - Journal of the American Society of Addiction Medicine
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Upcoming Webinar

Health coaching: A natural fit for nurses

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Thank you!