

Psychopharmacology

Part 3

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UNIVERSITY OF
LOUISVILLE
SCHOOL OF MEDICINE

PART 3

- Pain Medications
- Polypharmacy
- Cannabis
- Hallucinogens
- Steroids

OPIOID PAIN MEDICATIONS

- Two pathways originating in lower brain stem modulate transmission of pain.
 - Physical component
 - Descending NE and 5HT which activate endorphin neurons. (antidepressants can effect too)
- Affective component and emotional response to pain.
 - Chronic pain treatment focuses on behavioral modification, CBT, biofeedback
- Judicious opioid use is important

OPIOID PAIN MEDICATIONS

Controlled Substances Guidelines

The following should be documented in every chart when chronic controlled substances are being prescribed:

Guidelines per Kentucky Medical Board of Licensure

1. _____ Complete History and Physical to include:
 - Nature and intensity of the pain/condition
 - Current and past treatments for pain/condition
 - Underlying or coexisting illness or condition
 - Effect of the pain/condition on physical and psychological function
 - History of any substance abuse
 - Family History, esp. any 1st degree relative with chemical dependence problems
2. _____ Document 1 or more recognized medical indication(s) for the use of the (date completed) controlled substance
3. _____ Document through patient records or clinical trial that non-addictive (date completed) medication regimens have been inadequate or unresponsive for well-clinical reasons
4. _____ Report report initially and as needed to aid in documenting the patient's (date completed) history of drug utilization (needs to be kept separate from chart)
5. _____ Signed Controlled Substances Contract on chart. (date completed) Controlled Substances Contract not applicable because: _____
6. _____ Documented Treatment Plan (date completed)
7. _____ Documented discussion of risk, benefits, and limitation of treatment (date completed)
8. _____ Documentation of Medication: Dose, Type, Dosing, Quantity, and Route (date completed)
9. _____ Document periodic review of effectiveness (date completed)
10. _____ Document diagnostic, therapeutic, laboratory results, and conclusions or (date completed) evaluation

OPIOID PAIN MEDICATIONS

CONTROLLED SUBSTANCE AGREEMENT
Unit: Family & Geriatric Medicine

Controlled substances have the potential to be addictive and must be taken exactly as prescribed. I, _____ understand that if I am prescribed a controlled substance I must adhere to the following restrictions.

PLEASE INITIAL EACH LINE

Failure to conform to any of the below listed restrictions may result in being dismissed as a patient of the Family and Geriatric practice sites and being reported to the Louisville Metro Police Prescription Drug Squad.

1. _____ I will not use any alcohol or illegal drugs.
2. _____ I will not take any other prescribed medications without first notifying Doctor _____
3. _____ I will notify Doctor _____ immediately of any other physician(s) currently prescribing me a controlled substance(s) or that has been prescribed to me in the past 30 days (including Emergency Rooms and Intensive Care Centers.) Failure to do so is a felony crime (KRS 218a.140 (Obtaining or attempting to obtain drugs by fraud or deceit) and will be reported to the Louisville Metro Police Prescription Drug Squad.
4. _____ I will submit to random urine and/or serum drug screens as indicated.
5. _____ I will purchase all of my medication at _____ Pharmacy and authorize Doctor _____ to communicate with my pharmacist. There must also be a signed pain contract in the patient's chart or the patient will be brought in for a signed pain contract within 2 weeks.
6. _____ I understand that it is illegal to share this medication.
8. _____ I understand that drinking alcohol with this medication may be fatal.
9. _____ I agree to keep my medication locked in order to prevent _____

OPIOID RECEPTORS

- Opioid Receptors
 - Mu Receptors
 - Kappa Receptors
 - Delta Receptors
- Classification
 - Pure agonists
 - Pure antagonists
 - Mixed antagonists – antagonists
 - Partial agonists

OPIOIDS

- Effects

- Tolerance and Dependence

OPIOID EFFECTS

TABLE 9.1 Acute effects of opioids and rebound withdrawal symptoms

Acute action	Withdrawal sign
Analgnesia	Pain and irritability
Respiratory depression	Hyperventilation
Euphoria	Dysphoria and depression
Relaxation and sleep	Restlessness and insomnia
Tranquilization	Fearfulness and hostility
Decreased blood pressure	Increased blood pressure
Constipation	Diarrhea
Pupillary constriction	Pupillary dilation
Hypothermia	Hyperthermia
Drying of secretions	Lacrimation, runny nose
Reduced sex drive	Spontaneous ejaculation
Peripheral vasodilation; flushed and warm skin	Chilliness and "gooseflesh"

OPIOIDS

Treatment of dependence:

HALLUCINOGENS, CANNABIS, AND STEROIDS

- Cannabis
 - Cannabinoid Receptor/therapeutic uses:
 - Effects:
 - Side Effects:
 - Tolerance and Dependence:

PSYCHEDELIC DRUGS/HALLUCINOGENS

- Anticholinergic psychedelics:
 - scopolamine
- Catecholamine Like psychedelics:
 - Mescaline
 - Synthetic Amphetamine Derivatives

PSYCHEDELIC DRUGS/HALLUCINOGENS

- Serotonin like psychedelic drugs:
 - LSD
 - DMT
 - Psilocybin and Psilocin (mushrooms)
 - Ololiuqui
 - Phencyclidine (PCP- Ketamine related)

STERIODS

- Anabolic-androgenic steroids

- Mechanism of action

- Effects

Name	Route	Brand name
APPROVED IN UNITED STATES		
Testosterone cypionate	im	Depo-Testosterone, Virilon
Nandrolone phenpropionate	im	Durabolin
Nandrolone decanoate	im	Deca-Duraboli
Danazol	po	Danoscrine
Fluoxymesterone	po	Halostesin
Methyltestosterone	po	Android, Mastandren, Testred, Virilon
Oxymetholone	po	Anadrol-50
Stanozolol	po	Winstrol
APPROVED OUTSIDE UNITED STATES		
Testosterone enanthate	im	Delatestryl
Testosterone propionate	im	Testex, Oreston propionate
Methenolone enanthate	im	Primobolan Depot
Ethylestrenol	po	Maxibolan
Mesterolone	po	
Methandrostenolone	po	Dianabol
Methenolone	po	Primobolan
Novethandrolone	po	
Oxandrolone	po	Anavar
Oxymesterone	po	Oranabol
APPROVED FOR VETERINARY USE		
Bolasterone	im	Finject 30
Boldenone undecylenate	im	Equipoise
Stanozolol	im	Winstrol
Mibolterone	po	

STERIODS

STERIODS

- Toxicity
 - Endocrine
 - Cardiovascular
 - Liver
 - Psychological

- Dependence

What is Polypharmacy?



- 5 or more medications taken simultaneously
- More medications used than are clinically warranted.
- A Random Uncontrolled Experiment
- Types of Polypharmacy
 - Too many drugs
 - Inappropriate choices
 - Inappropriate combinations
 - Administration errors
 - Way off label use
 - Inappropriate dosing
 - Inappropriate prescriber

Silent Epidemic



- A side effect of modern medical care
- 15 minute office visit/Hospital visit
 - New drugs added annually
 - Multiple specialists
 - Over the counter products and supplements

A Pill for Every Ill



Total drug burden is important

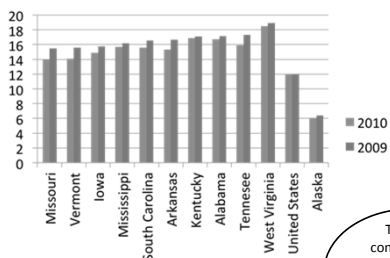
Average of 2.8 drugs discontinued per patient

1 year mortality rate 45% in control
 21% in study group

Annual referral rate to acute care 30% in control group
 11.8% in study group

Garfinkel, D et al. The War against Polypharmacy: A New Cost-Effective Geriatric-Palliative Approach for Improving Drug Therapy in Disabled Elderly People. JAMA 2007; 297: 5430-434

Scripts per capita 2010 (blue)
Kaiser Foundation



The U.S. consumes 80 percent of the world's opioids and 99 percent of its hydrocodone

PBS News Hour June 2011



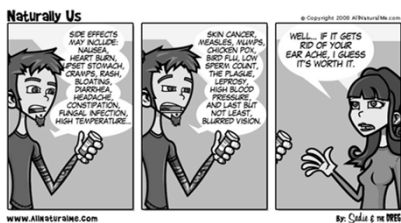
"If you remember, I did mention possible side-effects."

Signs of Medication Related Problems: ???

- **mental status changes**

- Agitation
- Manic behavior
- Any change in affect
- confusion

- **Not eating**
- **Not sleeping**
- **Somnolence**
- **Falls**



Akathisia and Agitation

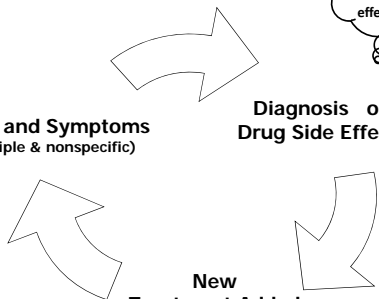
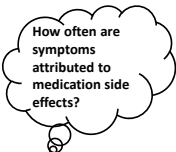


Is it the drug or the disease?

Signs and Symptoms (multiple & nonspecific)


Diagnosis or Drug Side Effect?

New Treatment Added



Sheer Numbers

All substances are poisons, what differentiates a poison from a remedy is dose



JC, 22 year old father of two and boyfriend

Typical weekend binge: 40-50 pills and a quart of Jack Daniels

Several periods of staying clean

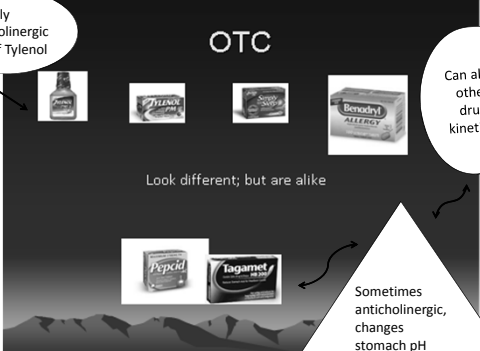
Prescribed Xanax to help his anxiety and drug withdrawal....

Toxicology report upon death: 134mg of Xanax (67 pills)

Seems Innocent Enough

Strongly anticholinergic
Lots of Tylenol

OTC



Look different, but are alike

Can alter other drug kinetics!

Sometimes anticholinergic, changes stomach pH

Heath Ledger 1979-2008

OTC stuff

- Doxylamine
 - NyQuil
 - Unisom
 - And who knows what else!

Prescription stuff

- Oxycodone
- Hydrocodone
- Diazepam
- Temazepam
- Alprazolam

Chief Complaints:
insomnia, anxiety, depression, pain and common cold per friends and family from the investigation

Two physicians (one in LA, one in Houston) were exonerated because "they had prescribed other medications, not the pills that killed him"

What if?

You took hands full of random non controlled Rx and OTC pills at a pharm party?

- *Gabapentin
- +Fluoxetine
- Digoxin
- *Furosemide
- Nifedipine
- *Celecoxib



How many?
Of which?



Your
physiology



What's in this bag?



Methadone X 5
Viagra X 3
Oxycodone X 2

Respiratory depression
Sedation
confusion

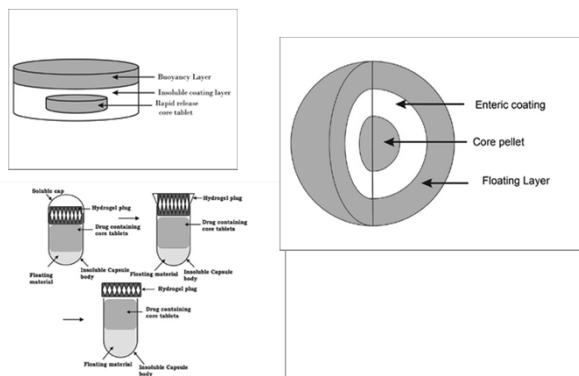
Neurotoxic
Cardiac sudden death, inability to respond to Viagra induced bp drop, and oxycodone induced respiratory depression

PERFECT

Dreps bp, raises ht rate

Respiratory depression
Sedation
confusion

To Crush or not To Crush?



END OF PART 3

- Questions?
- Comments?
- Share Ideas?
