OWN YOUR HEALTH

ST. PAUL'S HOSPITAL COMMUNITY FORUMS

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DEPARTMENT OF MEDICINE
PROVIDENCE HEALTH CARE

OWN YOUR HEALTH

ST. PAUL'S HOSPITAL COMMUNITY FORUMS

Let's talk about:

DRUGS

How They Work For You and Against You

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Drugs

- What are they?
- Some pharmacology concepts
- What they do…effects/side effects
- OTC’s
- Some cases
- Dependence, tolerance, withdrawal

Paracelcus ~1540

Poison is in everything.
It is only the dosage that makes it:

- a poison
  or
- a remedy

A Drug?

- Any substance that is meant to affect the physical or mental functioning of a living organism, especially used for the treatment or prevention of an ailment or disease.
- Therefore…pharmaceutical, herb, alcohol, naturopathic, homeopathic…caffeine, nicotine, marijuana…

Pharmacology Concepts

1. ***Absorption:*** Oral, sub lingual, intra muscular, intra venous, subcutaneous, inhaled, topical/trans dermal, nasally…
2. ***Distribution:*** Where the drug goes in the body. Water, fat, hard stuff.
3. ***Elimination:*** Liver and Kidney.

What Drugs Do?

- A carefully measured amount of drug has been tested to give a desired effect with most people.
- The concentration of drug in the blood usually correlates with degree of effect.
- This desired effect results from an interaction between the drug and the very many and varied cell types throughout the body.
- Just like side effects.

Cell Receptors

- Cell surface structures that the drug attaches to and initiates a response from that cell…
  ....arterial wall, muscle, nerve.
- These receptors are the same as what our own transmitters, hormones, and other chemical mediators interact with.
- Drugs can stimulate or block receptors.

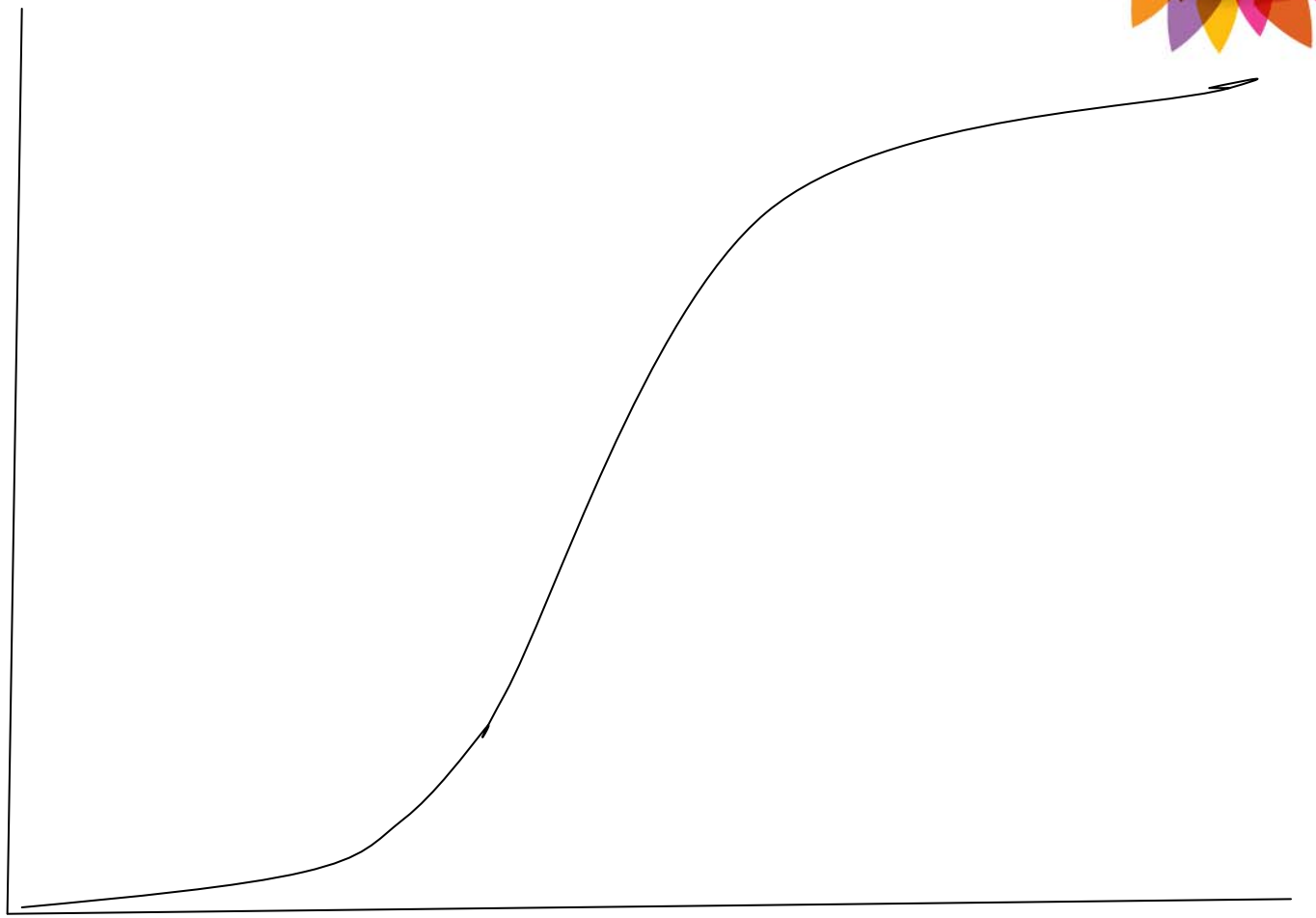
Amphetamines

- Amphetamines stimulate adrenaline receptors on nerve, muscle, heart, bowel…
- A beta blocker interferes with the effect of adrenaline by blocking the beta type of adrenaline receptor (propranolol, metoprolol, etc).

Drug Therapy Difficulties

- Getting the right amount of drug to the right tissue/cell, at the right time, for the desired duration.
- Minimizing the effect of the drug at all those cells that you don't want effected.
- Predicting the responders ahead of time.
- Predicting those who'll get side effects.

Is more better?



Drugs Go Everywhere

- ✓ Nerves
- ✓ Arteries
- ✓ Veins
- ✓ Muscles
- ✓ Heart
- ✓ Brain
- ✓ Lung
- ✓ Stomach
- ✓ Bowel
- ✓ Pancreas
- ✓ Prostate
- ✓ Liver
- ✓ Kidneys
- ✓ Blood cells

OTC's

- Generally safe for self treatment.
- Many are previous prescription drugs.
- *Remember:* **ALL ARE POISONS**.
- The intended benefit has to justify taking a drug, the cost and the risk.
- Ask your pharmacist.

Common OTC's

- Antihistamines
- Decongestants
- Anti-inflammatories
- Analgesics
- Antipyretics
- Vitamins
- Laxatives
- Antidiarrheals
- Anti-acid
- Antinauseants
- Sleep aids
- Topicals

Case

48 y.o. woman with chronic low back pain

- Mild to moderate degree, daily
- Tender muscles around lumbar spine
- X-rays: a bit of disc narrowing
- Takes Tylenol # 3 a few times per week (acetaminophen 300 mg, codeine 30 mg, caffeine 15 mg); Advil (Ibuprofen 2x200 mg AM and bed)

Six Months Later

- Back pain about the same
- Has stopped a lot of activity
- Concerned about some swelling in ankles and feet, and 10 lb weight gain
- Blood Pressure now high 150/95
- Doctor prescribed diuretic for swelling and BP

What's going on here?

- Ibuprofen is an anti-inflammatory drug, called NSAID's (Non Steroidal Anti-Inflammatory Drug), like Naproxen, Diclofenac, Ketoprofen, Ketorolac…
- Works best if there is inflammation or tissue damage, not so great with muscle spasm or irritated nerve root.
- Common side effect is fluid retention and resulting elevated BP.
- Effects on kidney hormones.

How to avoid this…….

Patient:

- ✓ Ask questions of yourself, your doctor, your pharmacist, and your computer.

Doctor:

- ✓ Look at the whole picture, i.e. look at today's BP and the back pain.
- ✓ Ask how the back pain is doing, what she is doing for it, whether the medication is helpful.
- ✓ If the medication isn't helpful, best to stop it; work with a physio; and let's check the BP in 3 weeks.

Key Questions

- Other than medication, what can I do?
- Is the medication helping, and how much?
- Is the medication having any side effects?
- Do I know what kind of side effects are common with this kind of drug?
- Does the drug help enough to justify the cost?

Addiction Issues

Tolerance: The reduction of drug response over time after repeated administration. Or, the need to take higher doses than previously to maintain the same response.

This is a physical and pharmacological phenomenon, not an addiction issue.

Cross tolerance is being tolerant to the effects of one drug (alcohol), and that tolerance carries over to another drug (diazepam, Valium).

Addiction Issues

- **Dependence**

Physical: The physical state resulting from the adaptation or tolerance in response to repeated drug use.

Abrupt discontinuation of the drug results in a withdrawal state characteristic of that drug.

Behavioural: A complicated state associated with the reinforcing behaviour of repeated drug use.

Drug Withdrawal

This state of withdrawal is the only evidence that there is physical dependence.

Withdrawal symptoms and signs result from the abrupt discontinuation of the drug.

This syndrome is typically opposite from the original effects produced by the drug before tolerance developed.

A withdrawal syndrome does not equal addiction.

Addiction

A complex behavioural disease associated with drug use, prescribed or otherwise.

The use and/or seeking of a drug for a purpose other than what it was initially prescribed for, or in a dose greater than recommended.

Taking an opioid originally given for pain and taken in higher dose because it feels good is drug abuse, and becomes addiction.

NEXT PUBLIC FORUM
March 16, 2011

OWN YOUR HEALTH

Let's talk about:

ATRIAL FIBRILLATION

Dr. Santabhanu Chakrabarti, MBBS, MD, FRCPC, FRCPCH
Division of Cardiac Electrophysiology SPH
And Atrial Fibrillation Nurse Educator (TBA)