



ODC NEWS & VIEWS

MARCH 2009

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Metabolism: Understanding What Happens to Drugs in the Body

By Keith Crawford R.Ph., Ph.D.

Keith Crawford is a Research Assistant Professor of pharmacology at Howard University College of Medicine, and a clinical pharmacist. He is also the Director of Clinical Research at Howard University School of Pharmacy.

Most of us are excited when spring arrives, unless you happen to suffer from seasonal allergies that can make springtime miserable. Did you ever wonder why one allergy tablet doesn't work for the entire allergy season? Why do we have to continuously take drugs?

Imagine a different scenario. Imagine yourself walking down the street. Suddenly, you see an angry pit bull charging at you. Your heart is pounding and your blood pressure shoots up! You quickly run to safety and the dog's owner comes and captures the dog. An hour

later, your heart isn't pounding anymore and your blood pressure is normal.

The chemical that makes your heart pound, adrenaline, has been broken down by the body and is no longer circulating in the bloodstream. In the same way, your body breaks down an allergy drug, vitamin or HIV medication.

Because drugs are always being metabolized

Drugs are foreign to the body; therefore they are chemically changed so they can be eliminated from the body. This process is called metabolism (me-TA-bo-liz-im). Special proteins called enzymes carry out metabolism in the body and a lot of these enzymes are found in the liver. These enzymes make chemical changes in the structure of a drug that

reduce its activity and make it easier for it to be removed from the body.

How is the changed drug removed? Sometimes, the drug leaves the liver, goes into the bowel, and is removed in the feces. In many cases, the changes in the drug make it easy for the drug to enter the kidney and it is eliminated in the urine.

Because drugs are always being metabolized, they only work for a certain period of time. They are dosed repeatedly so that the amount of drug available to work stays constant in the blood stream. If drugs are metabolized slowly, they don't have to be taken as often.

Most protease inhibitors are metabolized in the same way by the same enzymes. If certain protease inhibitors are taken together, they are broken down more slowly because they compete for metabolism.

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New Study of Splenda Reveals Shocking Information About Potential Harmful Effects

James Turner, the chairman of the national consumer education group Citizens for Health, has expressed shock and outrage after reading a new report from scientists outlining the dangers of the artificial sweetener Splenda (sucralose).

In animals examined for the study, Splenda reduced the amount of good bacteria in the intestines by 50 percent,

increased the pH level in the intestines, contributed to



increases in body weight and affected P-glycoprotein

(P-gp) levels in such a way that crucial health-related drugs could be rejected.

The P-gp effect could result in medications used in chemotherapy, AIDS treatment and treatments for heart conditions being shunted back into the intestines, rather than being absorbed by the body.

According to Turner, "The report makes it clear that

the artificial sweetener Splenda and its key component sucralose pose a threat to the people who consume the product. Hundreds of consumers have complained to us about side effects from using Splenda and this study ... confirms that the chemicals in the little yellow package should carry a big red warning label."

Have You Met Jennifer Genzlinger Yet?



Jennifer L Genzlinger

Job Title: Medical Case Manager for Ryan White clients and DOORS at the Elgin Clinic

How long have you been with ODC? I case manage clients in McHenry County and NW Cook County. I drive a lot!

Describe your family (define family however you want)? I am married with 3 daughters

What do you enjoy doing in your free time? Sleep!!!!!!

Where is the farthest place from home you have ever been? Hawaii is the farthest place I have been

What is your favorite food? Mexican, the spicier the better!

What one thing do you want to do that you haven't done yet? Travel around the US to see the

natural wonders we have.

Who is the most impactful person in your life or most impactful person on humanity (dead or alive)? I can't say one person has impacted my life as much as I would say my entire family. I have learned how to live, and not live my life through their examples.

Metabolism: Understanding What Happens to Drugs in the Body

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This allows the amount of one or both of the drugs to reach high blood levels. High blood concentrations of drugs are important to inhibit HIV replication. This is why double protease inhibitor combinations can be very useful in constructing a strong anti-HIV drug regimen. The same enzymes that break down the prote-

ase inhibitors metabolize many different drugs. Sometimes, combining other drugs with protease inhibitors can result in the other drug reaching high levels in the blood and this can cause side effects.

Non-nucleoside anti-HIV drugs (NNRTIs), like Sustiva and Viramune, could produce the opposite effect of protease inhibitors on drug

metabolism. These drugs can actually cause the body to produce higher amounts of enzymes. Increased levels of enzymes metabolize drugs more rapidly and can cause drug levels to be lower than expected. If drug levels are too low, the drug does not produce any medical benefit.

Understanding how the body metabolizes drugs can

help doctors and researchers choose the right doses and combinations. Some drugs work better when taken together. Some drugs should not be combined because they will not work as well or cause side effects. That is why it is important to tell your doctor about everything (including over-the-counter medications, herbs,

10 Diseases Linked To Soda



Statistics shows that Americans drink more soda than ever before. They account for more than 25 percent of all drinks consumed in the United States. More than 15 billion gallons were sold in 2000 -- about one 12-ounce can per day for every man, woman and child.

But here's some information that may keep you away from opening the can:

1. Extra pounds

Soda is a significant contributor to obesity. Drinking a single can a day of sugary drinks translates to more than a pound of weight gain every month. And diet soda is just as likely to cause weight gain as regular, or even more -- it may sound counterintuitive, but people who drink diet soft drinks actually don't lose weight. Artificial sweeteners induce a whole set of physiologic and hormonal responses that actu-

ally make you gain weight.

2. Liver damage

Soda damages your liver. Consumption of too many soft drinks puts you under increased risk for liver cirrhosis similar to the increased risk faced by chronic alcoholics.

3. Tooth decay

Soda dissolves tooth enamel. Soft drinks are responsible for doubling or tripling the incidence of tooth decay. Soda's acidity is even worse for teeth than the solid sugar found in candy.

4. Kidney stones and chronic kidney disease

Colas of all kinds are well known for their high phosphoric acid content, a substance that changes the urine in a way that promotes kidney stone formation. Drinking one quart (less than three 12-ounce cans) of soda per week may increase your risk of developing kidney stones by 15 percent.

5. Diabetes

Anything that promotes weight gain increases the risk of diabetes. Drinking soda also stresses your body's ability to process sugar. Some scientists now suspect that this may explain

why the number of Americans with type 2 diabetes has tripled from 6.6 million in 1980 to 20.8 million today.

6. Heartburn & acid reflux

Heavy consumption of soda is a strong predictor of heartburn. Many carbonated beverages are very acidic. They also deliver a lot of air in the form of carbon dioxide, which can cause distension of your stomach. And that distension appears to be associated with more reflux.

7. Soft drinks = Soft Bones = Osteoporosis

Soft drinks containing phosphoric acid are definitely linked to osteoporosis (a weakening of your skeletal structure) because they lead to lower calcium levels and higher phosphate levels in your blood. When phosphate levels are high and calcium levels are low, calcium is pulled out of your bones.

8. Hypertension (high blood pressure)

Experts have reasons to believe that overconsumption of soda leads to an increase in blood pressure. It doesn't matter if the soda is regular or diet.

9. Heart disease

Heavy soda drinkers are more likely to develop risk factors for heart disease. Research shows that drinking more than one soft drink a day is associated with an increased risk of developing metabolic syndrome - a group of symptoms such as central obesity, elevated blood pressure, elevated fasting blood sugar, elevated fasting triglycerides, and low levels of HDL or "good" cholesterol. Having three or more of the symptoms increases your risk of developing diabetes and cardiovascular disease.

10. Impaired digestion (gastrointestinal distress)

Gastrointestinal distress includes increased stomach acid levels requiring acid inhibitors, and moderate to severe gastric inflammation with possible stomach lining erosion. Drinking sodas, especially on an empty stomach, can upset the fragile acid-alkaline balance of your stomach and other gastric lining, creating a continuous acid environment. This prolonged acid environment can lead to inflammation of your stomach and duodenal lining.



All Things Chocolate

All Things Chocolate is one of the fundraiser that Open Door Staff puts together to raise money to help keep the Aurora and Elgin Clinics operational.

Lynn Kennedy headed up this year's event, with the help of the staff and many other volunteers. I can say that they did one heck of a great job. It was elegant, organized, and just so won-



derful. Words could not start to describe this years All Things Chocolate.

This year the event was held at the Westin in Itasca on February 21, 2009.

This is the third year that I have attended this event and I have to say it was AW-SOME.



venders provided,. Many donated silent auction items for guest to bid on and last but not least there was all the raffles that were held

At All things Chocolate there was many things for people to enjoy. Of course there the great tasting chocolate that the chocolate



Through out the evening.

A couple of Aurora clients won Subway gift certificates and the mother of another client won the fifty/fifty raffle.



The DJ Donated her time and music. So the answer to your question is "yes" there was dancing. Even some of the Staff went out

on the dance floor and tore it up.

The Open Door Clinic Board gave some awards out to participants and companies that gave of themselves to help Open Door Clinic in the past.

There were some new and old faces attending this years event and it was great to see and talk to the them.



If you ever get a chance or know someone that would like to experience this, Tell them about it, it is for a great cause and that cause is you.



I would like to THANK all the people that helped with putting on this event. You have made a big difference the clients lives.



Anti HIV Gene Therapy Trial Promising

The first phase 2 gene therapy trial for treating HIV has shown some promising results, although it is too early to say if this kind of treatment will be viable, there is enough evidence to justify further research into how to improve the approach, said the investigators.

The research was the work of Dr Ronald T Mitsuyasu of the University of California Los Angeles (UCLA) and colleagues from UCLA and other research centres in the US, Australia and Germany, and was published online in *Nature Medicine* on 15 February.

Mitsuyasu is the Director of the Center for Clinical AIDS Research and Education at UCLA (CARE), a Professor of Medicine in Residence at the UCLA David Geffen School of Medicine, and an Associate Director of the UCLA AIDS Institute.

Although this first randomized, double-blind, placebo-controlled phase 2 trial in 74 HIV infected adults did

not show a statistically significant difference in viral load between the treatment and the placebo groups at the primary endpoint, other analyses "did reveal that the gene therapy seemed to have a modest, but statistically significant, effect at reducing viral load in the treated subjects versus the placebo arm", said the article summary, which also suggested that the trial provided useful clues about what to improve for the future.

Although highly active antiretroviral therapy (HAART) has greatly improved quality of life and extended the lives of people with HIV, there is a risk of adverse side effects and the virus is starting to mutate into forms that are less responsive, so the need for a new kind of treatment is increasing every day. Gene therapy has the potential to be a once only treatment that reduces the amount of HIV present in the body, preserves the immune system and avoids having to

be on HAART for life.

For the study, Mitsuyasu and colleagues took blood [stem cells](#) (CD34+ hematopoietic progenitor cells) from the patients in the treatment group, modified them to carry an enzyme called OZ1, and then reinjected them back into the patients. OZ1 targets two proteins that stop HIV replicating itself. The patients in the placebo group underwent the same

procedure except that they received a placebo.

The trial was double blinded, so neither the patients nor the health care team treating them knew whether their stem cells carried the active enzyme or a placebo.

After 48 weeks the results showed there was no statistically significant difference between the two groups in terms of the viral load (the amount of HIV circulating in their bloodstream).

But after 100 weeks, the patients who had received OZ1 had higher levels of

CD4+ cells circulating in their bloodstream: CD4+ cells are key immune cells that are targeted and destroyed by HIV.

The authors concluded that:

"This study indicates that cell-delivered gene transfer is safe and biologically active in individuals with HIV and can be developed as a conventional therapeutic product."

According to BBC News, Mitsuyasu told the press this was the first study to undergo the tight protocols of a controlled clinical trial where patients didn't know if they were in the treatment or the placebo group.

Mitsuyasu said that while the treatment is a long way from being ready for clinical use compared to the well tested HAART, the study showed it has potential: they now have "proof of concept" that inserting a single anti-HIV gene into patients' blood stem cells can reduce the virus' ability to self-replicate.

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LOVE AND ACTION FUTURE EVENTS

- April 5** **EASTER FAMILY DINNER 5 pm** at Congregational Church of Christ – see attachment for details
- April 22** **Ladies' lunch at Bergs, 12pm, 415 Park Ave. ST. Charles, phone 630 584 5380**
- May 13** **Ladies' lunch at Bergs, 12pm, 415 Park Ave. ST. Charles, phone 630 584 5380**
- May 22,23** **Friday and Saturday - Annual Love and Action PERENNIAL PLANT and GARAGE**

**MARCH
EVENTS**

- 02- Nutrition Group (E)
 - 03 -04 Lobby Days
Springfield IL
 - 04- Support Group 5-8p (E)
 - 09- Nutrition Group (A)
 - 13- Support Group 4-6p (A)
 - 16- Staff Meeting (E)
 - 16- Nutrition Group (E)
 - 17- CAC Meeting
 - 18- Ladies Lunch 12p (LA)
See below for more info
 - 23- Nutrition Group (A)
 - 26- Bingo (E)
 - 27- Support Group 4-6p (A)
 - 30- Nutrition Group (E)
- (A) Aurora (E) Elgin
(LA) Love & Action

Dates are subject to change
Please call to verify dates

March 18
Ladies' lunch at Noon at Laverne Harden's in North Aurora, Christian Life Retirement Center 100 Mitchell Rd. #108 No. Aurora, 60542 phone: 630 264 2876 Call Laverne if you are coming and/ or need a ride.

Anti HIV Gene Therapy Trial Promising

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"Gene therapy has the potential of needing only a one-time or infrequent administration of product and would allow the patients to control their own HIV inter-

nally without the need for continuous drug therapy," he said.

But Mitsuyasu said more trials and long-term follow up were needed to make

sure the therapy was effective and safe in the longer term.

"Phase 2 gene therapy trial of an anti-HIV ribozyme in autologous CD34+ cells."

Ronald T Mitsuyasu, Thomas C Merigan, Andrew Carr, Jerome A Zack, Mark A Winters, Cassy Workman, Mark Bloch, Jacob Lalezari, Stephen Becker, Lorna Thornton, Bisher Akil, Homayoon Khanlou, Robert Finlayson, Robert McFarlane, Don E Smith, Roger Garsia, David Ma, Matthew Law, John M Murray, Christof von Kalle, Julie A Ely, Sharon M Patino, Alison E Knop, Philip Wong, Alison V Todd, Margaret Houghton, Caroline Fuery, Janet L Macpherson, Geoff P Symonds, Louise A Evans, Susan M Pond & David A Cooper.

Annual Easter Family Dinner

Love and Action

Palm Sunday, April 5, 2009

5:00 pm

Congregational United Church of Christ



La Fox Road - St. Charles



Directions to the church

Randall Road to Highway 38, turn west on 38, go about 4 miles (third stop light), turn right 1 mile to church on right.

Bring your family and friends.

We'll be looking for all of you!!

Let's Celebrate Christ's resurrection together.

If you will need a ride please call now, 630 738-1437

OPEN DOOR CLINIC	
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If you are interested in getting the Open Door Clinic's monthly newsletter via e-mail or have any topics that you would like to see in the newsletter.

Please email me at deanb@opendoorclinic.org