The CAMH Pharmacogenetics Research Project: Personalized Treatment in Psychiatry
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- Funded by Ont Min Research & Innovation - Projected N = 20,000
- In-house research gene panel assay - Kennedy Lab
- Assessment of important drug metabolism genes (CYP2D6, CYP2C19, others)
- Interpretation of genetic results given to physician in 48 hrs
- Testing feasibility and acceptance of genetic report by physician and patient
- Patient response & side effects follow-up via website /smartphone and EMR.
- Linked to Ont Health Survey
- Physician survey: attitudes, feasiblity, usefulness.

www.IM-PACT.ca
www.pharmacogenetics.ca

Example Pharmacogenetic report that informs prescr

camh IMPACT
Individualized Medicine:Pharmacogenetic Assessment & Clinical Treatment

Tanenbaum Centre for Pharmacogenetics, Neurogenetics Section
Centre for Addiction and Mental Health
250 College Street, Toronto, ON, M5T 1R8
Fax: 416-979-4666

Patient Name:
Medical Record Number:
Requesting Physician:
Sample Collected:

Collab ID:
Date of Birth:

Liver enzyme Cytochrome P450 gene testing for drug metabolizing capacity

RESULTS

Method: Genomic DNA was extracted from saliva. DNA specimens were analyzed using the Applied Biosystems TaqMan SNP genotyping and gene copy number detection assays.

Interpretation:

Gene	Metabolizes	Genotype	Metabolizer
CYP1A2	AP: olanzapine, clozapine AD: Cymbalta	*1/*1F	Extensive
CYP2C19	AD: Celexa, Lexapro, Zoloft	*1/*1	Extensive
CYP2C9	AD: Fluoxetine, Amitriptyline	*1/*1	Intermediate
CYP3A5	AP: risperidone	*1/*1	Intermediate
CYP2D6	AP: Haldol, Risperdal, Abilify, zuclopenthixol, AD: Effexor, paroxetine, fluoxetine, Luvox, Elavil, Anafranil, Norpramin, Pamelor, Tofranil, mianserin O: Strattera	*1/*2(xN)	Ultrarapid

AP = Antipsychotic; AD = Antidepressant; O = Other

Additional medications can be found at http://medicine.iupui.edu/clinpharm/ddis/table.aspx.

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Ontario Pharmacogenetics Project "IMPACT"

- in the first two years 2000 patients (N=2,100 as of July 2014) have been assessed, genotyped, and followed for response and side effects.
- pharmacogenetic testing is being rolled out to primary care clinics affiliated with 4 Toronto hospitals (catchment = 1,200,000 pts)
- Consented for OHIP # link to ICES for healthcare cost savings analyses [current est = $5,188 / Maj Depr pt /yr].
- Discovery research underway with Omni 2.5 SNP chip and methylome chip [20,000 pt x 100 phenos x 2.5M SNPs x 450k epigenetic sites = 225,000,000,000,000,000 items = 225 peda-B
- Nested RCT: gene-guided prescribing vs treatment as usual
- 5 CAMH patents licensed to industry
- Looking for comp-sci postdoc for AI & NLP of EMR

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