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Psychiatry and Addictions Case Conference

UW Medicine | Psychiatry and Behavioral Sciences

URINE DRUG TOXICOLOGY

Suzanne E. Rapp, MD

UW Medicine
PAIN MEDICINE
TELEPAIN

Integrated Care Training Program
UW Psychiatry & Behavioral Sciences

project ECHO

GENERAL DISCLOSURES

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SPEAKER DISCLOSURES

✓There are no conflicts of interest to disclose.

OBJECTIVES

- Encourage your clinic policy formation
- Collecting and ordering processes
- Understand different types of UDT
- Understand basic science/technology
- Be able to interpret basic results
- Communicate with laboratory regarding needs
- FAQs
- Future compliance documentation

BACKGROUND

- Patient reported medication use is not reliable
- Significant incidence of illicit and controlled substance abuse in chronic pain patients
- Deaths increasing from multiple medication overuse
- Urine drug testing originally designed for deterrent-based testing
- Now with improved technology, can be ONE monitor of patient adherence to medication management

Fishbain, DA , Clin J Pain 1999; Manchikanti L Pain Physician 2003, Ives TJ, BMC Health Serv Re 2006.

WHY BOTHER?

Rational depends on clinical question:

- Assist in medication adherence
- Evaluation for initial diagnosis of drug misuse or addiction
- As an adjunct to self-report of drug history and medication use
- To encourage or reinforce behavioral change
- Requirement of ongoing treatment

Potential offshoot is that providers may feel more comfortable prescribing opioids if they have a test to clarify medication utilization.

Heit HA, Gourlay DL JPSM 2004; Wolff K, Farrell M, Marseden J et al Addiction 1999

POLICY

- **Why are you using UDT?**
- **Impact of CMS guidelines**
- **What will you do with results?**
  - Education
  - Dose or medication adjustment
  - Opioid Cessation
- **What are your goals for monitoring patients in your practice?**
  - Safety
  - Function

TYPES OF TESTING

- Point-of-care
  - High cut-off immunoassay
- Laboratory Immunoassay
- Confirmatory
  - Usually chromatography/mass spectroscopy

POINT-OF-CARE

- Office-based screening test ONLY
- Immunoassay with high cutoffs
- Many false positive/negative values
- No clonazepam, lorazepam, fentanyl
- CLIA – Waived
  - www.doh.wa.gov/hsqa/fsl/LQA Home.htm

WHAT THE HECK IS CLIA-WAIVED?

- http://www.doh.wa.gov/hsqa/fsl/LOAHome.htm

ROLE OF P.O.C. TESTING

1. Screening test
2. Ask the patient
3. Know the false negatives and false positives of your test strip
    1. Our clinic had 40% FP for methadone and 38% for methadone. So we stopped POC
4. May obviate additional testing
    1. If pattern is expected

POC – WHAT IS EXPECTED

- It is a screening test
- It measures mainly drug classes **only** with high cutoffs
- It needs to be confirmed per manufacturer and federal government in order to take action (discharge)
- If it tells you what you want, you may decide to stop here
- It will **never** provide results on:
  - Amphetamines vs. metamphetamines, specific benzodiazepines, or fentanyl

LABORATORY IMMUNOASSAY

- Principle of competitive binding
- Structurally-like compounds may interfere
- Most often measures metabolites
- Test results read as positive or negative
- Laboratory immunoassay
  - 6 tests
  - Lower cutoffs than POC

CONFIRMATORY TESTING

- GC/MS or LC-MS/MS
- Lower cutoffs
- May be more appropriate in Chronic Opioid Therapy
- Test results in ng/ml
- Numbers do not reflect dose
- Billing is most often based on each drug asked for – may be in combinations – ask your lab

LC-MS/MS: LIQUID CHROMATOGRAPHY WITH TANDEM MASS SPECTROSCOPY

MS offers the chromatographic separation and mass fragmentation of patterns that are characteristic for each medication.

Utilizes isotope dilution to quantify medication – considered the gold standard for determining how much medication is present in the sample (this is quantification)

However! Quantitative excretion does not relate to medication dose.

Mohsin et al 2007; Federal register 2004; Nafziger & Bertino 2009

SPECIMEN VALIDITY

Consider if: concern of adulteration with abnormal color, temperature, excessive bubbles, or patient behavior.

IN FUTURE, PAYERS WILL NOT REIMBURSE FOR THIS TEST

- **Temperature**
  - Between 32-38ºC with 4 minutes of collection
- **Specific Gravity**
  - 1.002-1.020, or u. creatinine <20mg/ml

ORDERING PROCESS – PART 1

If you wish, you can do office testing if concern with patient behavior. Know that there are many devices and processes that I will not go into that can foil the process such as purchased urine, urinator, special penile devices. If you have such patients or concerns, then perhaps there are larger issues and a PCP office is not the place for such patients.

ORDERING PROCESS – PART 2
ASK THE PATIENT

1. When he/she took the last dose of all prescribed medications of interest
2. Ask if there are any unexpected substances to be found in the urine
3. Tell patient why urine drug toxicology is important (mention safety)
4. Look at the PMP

LOW RISK VS HIGH RISK PANEL

Classic Teaching

Categorize patients to determine kind of test

1. Low risk panel for low dose, good pt (immunoassay only)
2. High risk (patient with addiction hx or past aberrant behavior(confirmatory)
3. BUT how to consider cost

LOW VS HIGH RISK ORDERING

Ask the patient: If the patient admits to heroin use, and the strip comes up + for buprenorphine, opiates and oxycodone, THIS IS THE PATTERN EXPECTED in heroin use in buprenorphine treatment. So you are done.

Of course not fool proof….

CONFIRMATORY TEST ORDERING

Classic Teaching

-When high risk, confirm.

-But when population is high risk, to collect but not send, also serves as a kind of “random urine testing”. The patient never knows.

-Ultimate best practice with cost effectiveness still tbd

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QUICK REFERENCE CARD

- Quick glimpse of common opioids and UDT interpretation

Parent drug	Metabolites
CODEINE	Morphine, Hydrocodone
FENTANYL	*Norfentanyl/hydrofentanyl*
HYDROCODONE	Hydromorphone, Norcodeine
HYDROMORPHONE	*Hydromorphone*
LEVOPHANOL	Norlevorphanol
MEPERIDINE	*Normeperidine*
METHADONE	Methadone
MORPHINE	*Codeine (impurity), Hydromorphone (minor)*
OXYCODONE	Oxymorphone, Hydrocodone (minor impurity)
OXYMORPHONE	*Oxycodone (minor impurity)*
SUFENTANIL	Sufentanil
TRAMADOL	*Nortramadol*

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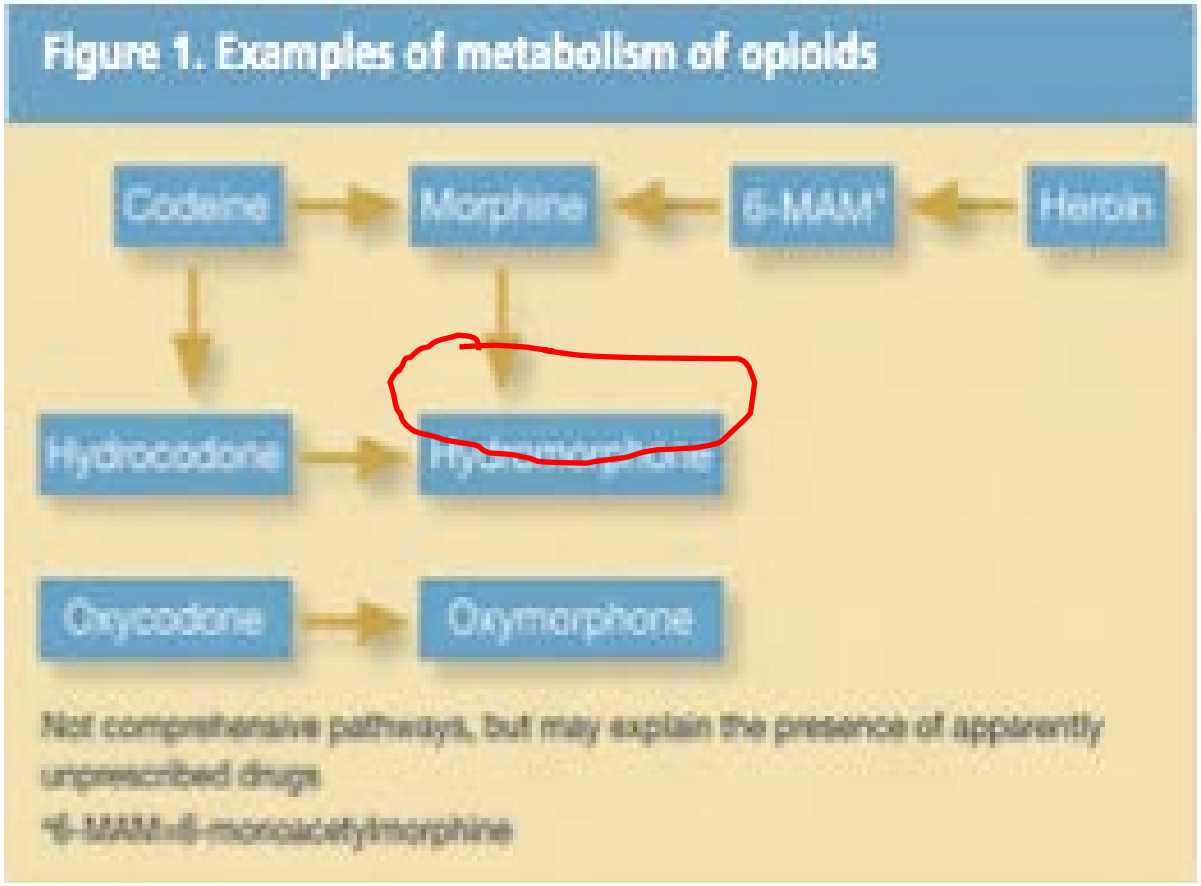
EXAMPLES OF METABOLISM OF OPIOIDS



NEWS: THE GOOD AND THE BAD

- **Cocaine - high specificity**
  - Low cross-reactivity
  - Very specific in predicting use

- **Amphetamines - low specificity**
  - Highly cross-reactive
  - Not every predictive
  - ADHD drugs will react
  - Need additional testing

TOXICOLOGIST

- **Some laboratories have written comments accompanying results**

- **If unsure of how to interpret, call the toxicologist**
  - You cannot be expected to know everything
  - Provides backup for self and patient
  - Your education

REASONS FOR NEGATIVE TESTS

1. Patient, not recently used medication in question
2. Patient excretes or metabolizes the medication at a rate different than normal; pH effects of urine, effects of other drugs (rifampin)
3. The test was not sufficiently sensitive to detect medication
4. Clerical/technical errors
5. The patient did not/does not use the medication
6. Provider wrote sig: 1-2 po Q4-6 hrs prn for 30-60 tablets which should last a month
7. PS: No good metabolic tests available yet

INTERPRETATION: LABORATORY ERROR

- Process for adherence drug testing/monitoring differs from mandatory guidelines for workplace drug testing – not as rigorous, i.e. not witnessed
- Therefore, it is subject to same potential errors as in all laboratory testing including technical and clerical, mix-ups, etc.
- Albeit rare, this must be considered in interpretation of unexpected results.

Manchikanti L, Pain Physician 2008

SO, YOU HAVE DONE A TEST. NOW WHAT?

UDT MONITORING PROCESSING

1. Policy – who, when, etc
2. Decide tolerance for marijuana
    1. Do you test?
    2. It is legal
    3. Action on results

MONITORING CONT.

3. Include in patient agreement
   - Concept discussed is now “shared decision-making”

4. Discuss “Call-back UDTs” with patient

Patient given 24 hours to present for urine drug testing

THE LITERATURE

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GAPS IN THE LITERATURE

1. **What to do with the test results**
2. **How to diagnose diversion**
3. **Should providers give** "second chances" **and to whom?**
4. **Which diagnosis is appropriate**
5. **How to approach marijuana**

ACTION ON UDT RESULTS

REVIEW

YOUR

DATA

ACTION ON UDT RESULTS

- **Is result "compliant"?**
  - Prescribed drugs present
  - Non-prescribed drugs absent
  - Illicit drugs absent
- **Is result "non-compliant"?**
  - Prescribed drugs absent
  - Illicit drugs present
  - Non-prescribed drugs present

ACTION ON UDT RESULTS

- **Risk factors?**
  - Dose greater than 100-120 MED
  - Co-morbidities
  - OSA
  - Addiction history

ACTION ON UDT RESULTS

- **Aberrant behavior**
  - Early refill requests
  - Lost scripts, etc.
  - Missed appointments
  - Participation in pain care

POSSIBLE ACTIONS

1. Maintain current prescribing plan
2. More frequent refills
3. Lower dose
4. Structured second chance
5. Cessation of opioid medications
6. Additional consultations
    1. Mental health for better coping
    2. Addiction Medicine

SECOND CHANCES

No specific studies,

HOWEVER

Literature does not support

1. With greater than 4 aberrancies
2. In patients with illicits present and a history of substance abuse (cocaine)

WHAT IS THE DIAGNOSIS?

1. Has patient been adequately worked up?
2. Is patient participating in care?
3. Is patient as functional as possible for structural lesions?

MARIJUANA

1. No documented overdoses
2. No data on negative/positive effects combined with opioids
3. British review 2011 suggests benefit in neuropathic pain
4. Sedative?
5. Safety
    1. Combination with alcohol

DOCUMENTATION

Whatever your choice of action, especially if “out-of-the-box”, document, document, document

PITFALLS – UDT IN SUMMARY

- Not useful test if medications very PRN
- Very hard to use to diagnose diversion
- UDT should be one data point, not the be the end all and be all

FREQUENTLY ASKED QUESTIONS

1. What help are the numbers in quantitative testing?
2. Can patients act as their own controls in terms of quantitative testing?
3. What do I do about marijuana?
    A. Clinic policy

STATEMENTS

- 1. “I am ordering an immunoassay screen to detect the presence of _____(prescribed medications), the absence of other opioids NOT PRESCRIBED, and the use of illicit substances. Confirmatory testing will be performed when prescribed medications are not detected on screening.”

ADDITIONAL STATEMENTS

- 2. “Screening for illicit substances is ordered due to the _____(patient history of _____), risk of substance abuse as noted by _____(ORT – be specific, known use in community (how to know this????), history or aberrant behavior (list if possible)). Possibly under pain diagnosis in problem list

JUSTIFY CONFIRMATORY TESTING

1. CMS will deny confirmatory testing for negative immunoassay results
2. May need to state rationale – eg. “wife takes hydrocodone”

CONCLUSION

- In terms of type of test, the most sophisticated is easiest to interpret (numbers), most reliable, and most expensive.
- Need to assess what action is generated by test results – that is policy formation, and maybe individualization of care.
- CMS guidelines coming which will impact tests ordered and documentation requirements
- UDT is the only ONE tool by which to monitor adherence to chronic opioid therapy.

CONTACT INFORMATION

- Suzanne E. Rapp, MD
- serapp@u.washington.edu

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