SELECTED OPIATES TOXICITY

A MODERN DAY EPIDEMIC

Learning Objectives:

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- 1. Identify the names and reasons/circumstances for additional toxicity of SELECTED OPIATES
- hydroMORPHone DILAUDID
- Methadone
- Fentanyl/DURAGESIC

criteria for these selected opiates

- 2. Identify and discuss
- education,
- potency,
- tolerance,
- safety,
- kinetics,
- dosing

LEARNING OBJECTIVE

- Distinguish between
  - long acting opiates for chronic pain
- versus
  - short acting, immediate release opiates for acute pain or breakthrough pain treatment in patients receiving long acting opiates
  - Methadone any any transdermal or controlled / extended release opiate should NEVER be used for acute use or in an opiate naïve patient

Errors with opiates

- Errors with opiates have led to serious adverse events, including allergic reactions,
- failure to control pain, over-sedation, **respiratory depression,**
- **anoxic encephalopathy,**
- **seizures, and**
- **death**.

Signs of opiate toxicity

- **Beware of the signs of opiate overdoses, including**
- **Respiratory distress**
- **Shallow breathing**
- **New onset snoring**
- **Tiredness**
- **Extreme sleepiness / sedation**
- **Inability to think, talk, or walk normally**
- **Feeling faint, dizzy, or confused**
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Increased risk of opiate toxicity

- **Morbid obesity / sleep apnea patients**
-
- **Asthma and COPD patients**
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- **Multiple CNS depressants**

- **Opiate naive**

Mitigation/prevention of opiate toxicity

- **Pulse Oximeters,**
- **Capnography**
- **Clinical Monitoring**
- **Education of patient and family**
- **death at home 4 hours post amb. surgery**

DILAUDID / hydroMORPHone

- Particularly morphine and hydroMORPHone – still among the most frequent high-alert medications to cause patient harm.
- ISMP
- TJC

MORPHINE CONFUSION

hydroMORPHone Confusion

CONFUSION and IGNORANCE

- Mix-ups between hydroMORPHone and morphine, caused at times from the misconception that hydroMORPHone is the generic name for morphine.
- Misunderstanding of the potency differences of Dilaudid and morphine.
- Dilaudid is 7 times more potent than Morphine
- Dilaudid 1mg = morphine 7mg

Dilaudid hydroMORPHone dosing

- Incremental full mg dose increases with Dilaudid may result in too much drug; intervals between PRN dosing too short; selection of HIGH doses without knowledge of patient's pain needs and consequently overdosing the patient.
- Suburban Chicago Family Practice resident deposition: "I don' t know the half life….."{

Solutions to the Dilaudid problem

- Include the brand name Dilaudid with hydroMORPHone in orders, labels, computer screens, and medication administration records (MARs).
- Use TALL man letters.
- hydropMORPHone is NOT a generic morphine
- Stock morphine and hydroMORPHone in different strengths
- (e.g., 1 Ml prefilled syringes of hydrMORPHone 1 mg/1 mL; 2 mL prefilled syringes of morphine 2 mg/mL).

DURAGESIC/FENTANYL PATCHES

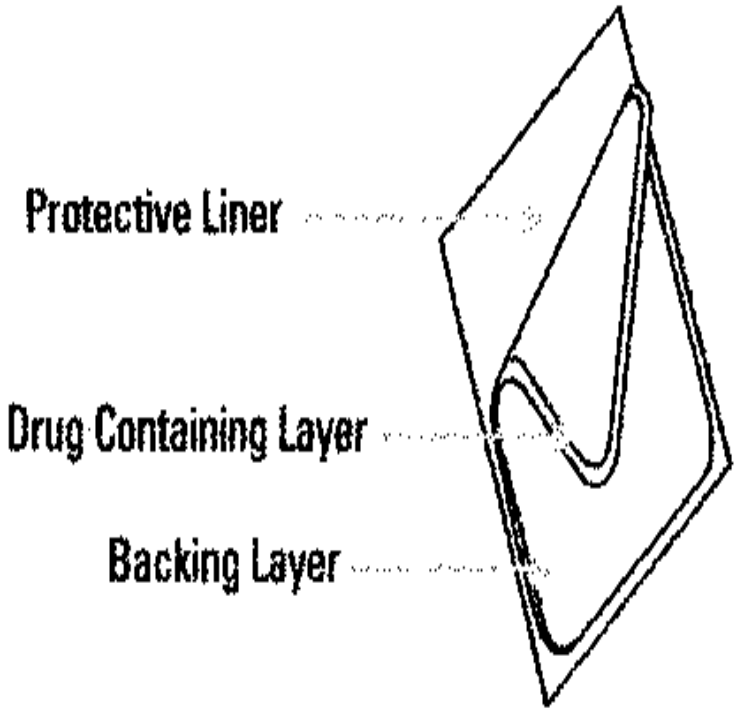
- **Unintended Use of Duragesic**
- Transfer of a Duragesic patch from an adult's body to a child while hugging
- Accidental sitting on a patch
- Failure to remove patch when new patch applied (ignorance of patient)
- Possible accidental exposure of a caregiver's skin to the medication in the patch while the caregiver was applying or removing the patch

FENTANYL PATCH

- A used patch, depending on size, will still contain 0.7 to 8.4 mg or 28% to 84% of fentanyl.(lethal)
- Proper disposal of used patches and screening of high-risk individuals are critical with fentanyl treatment.
- Heat enhances absorption / toxicity of the drug to dangerous levels. (baths, hot tubs. Elec. Blankets)
- CALL Dr IF THEY DEVELOP A FEVER

DURAGESIC® is a rectangular transparent unit comprising a protective liner and two functional layers. Proceeding from the outer surface toward the surface adhering to skin, these layers are:

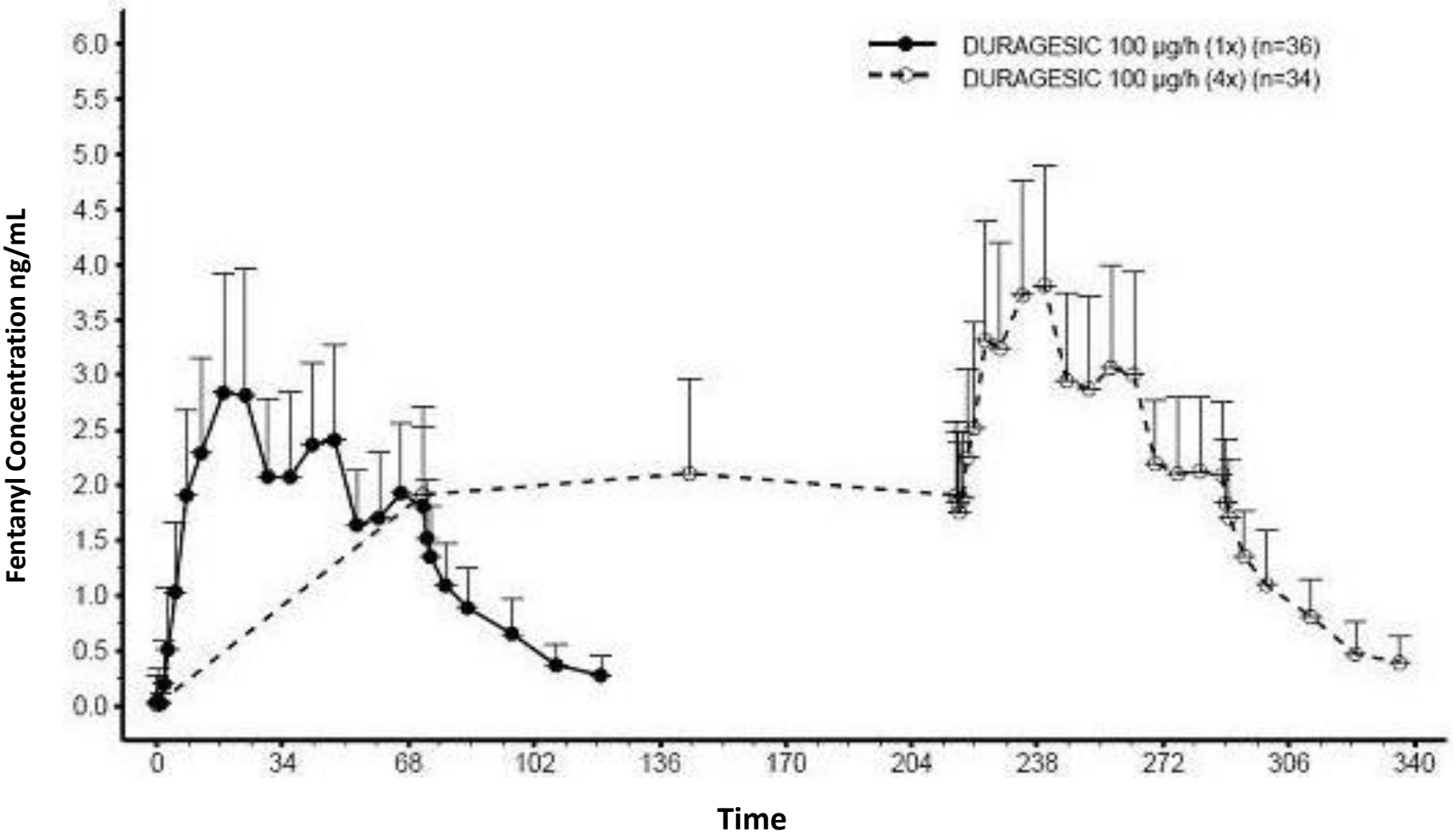
1) a backing layer of polyester/ethyl vinyl acetate film; 2) a drug-in-adhesive layer. Before use, a protective liner covering the adhesive layer is removed and discarded.



The active component of the system is fentanyl. The remaining components are pharmacologically inactive.

Serum Fentanyl Concentrations

Following Single and Multiple Application of DURAGESIC® 100 mcg/h



FENTANYL PATCH MISPRESCRIBING

- Prescribing for **opiate-naïve** patients, - CONTRAINDICATED
- especially with hydromorphone and fentanyl patches (other controlled release opiates).
- Requisite baseline opiate chronic therapies, morphine equivalents, hydrocodone
- SEE OPIATE EQUIPOTENCY TABLES ON BLACKBOARD

POTENCY

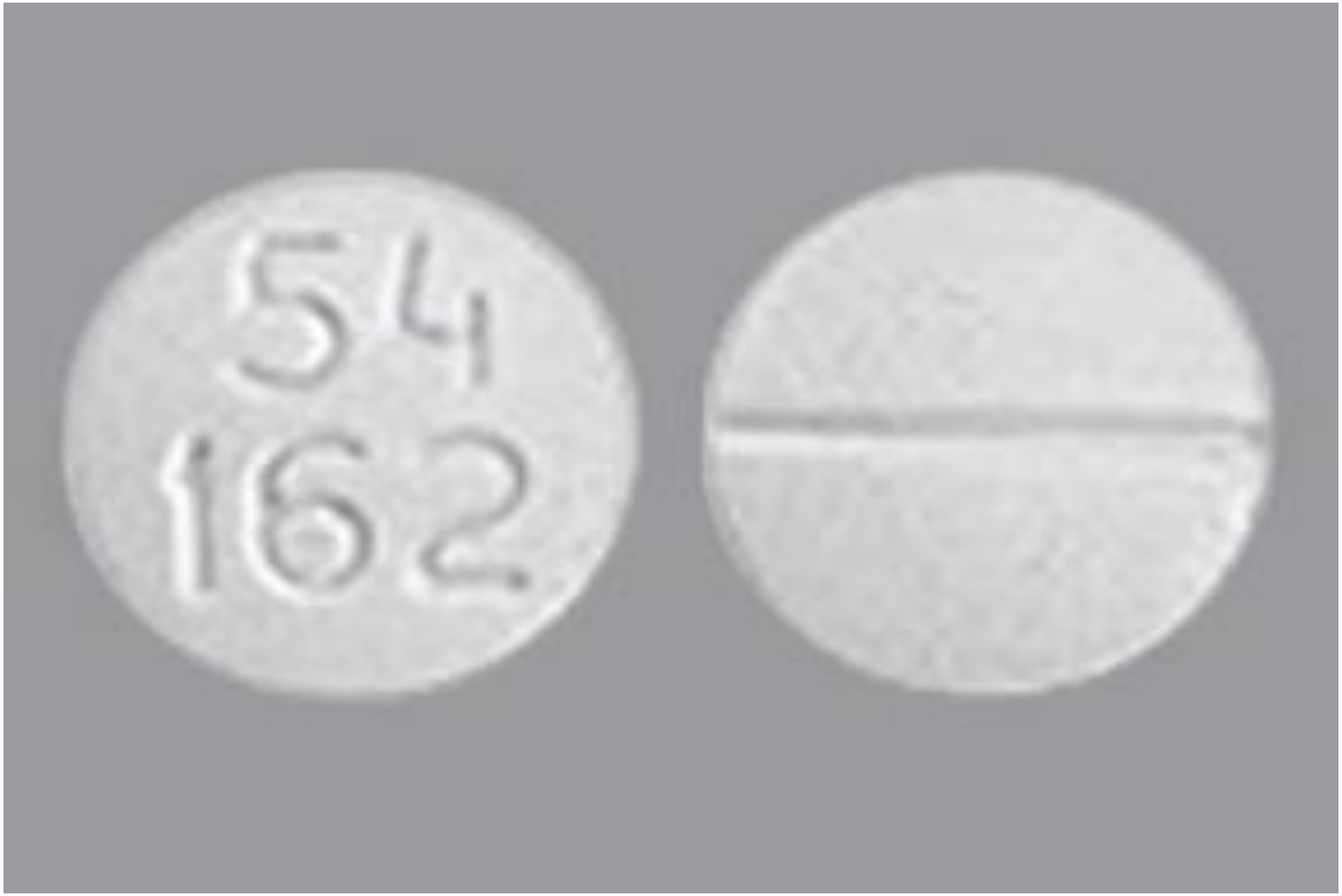
- POTENCIES
- Unfamiliarity with proper oral-to-IV dose conversions for some opiates.
- F VALUE
- RELATIVE POTENCIES
- DILAUDID **7 X** MORE POTENT THAN MORPHINE
- FENTANYL **100** X MORE POTENT THAN MORPHINE
- use, package inserts of drugs/ conversion tables

TOLERANCE

- Prescribe fentanyl patches only for patients who are opioid tolerant, and who have chronic pain that is not well-controlled with shorter-acting analgesics.
- These patches should not be used (**CONTRAINDICATED**) for postoperative pain, or for pain that's short-term or intermittent.

METHADONE

- Interpatient variability in Methadone's absorption, metabolism, and relative analgesic potency necessitates a highly individualized approach to prescribing with particular vigilance during treatment initiation and titration.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METHADONE PRESCRIBING

- Incomplete cross-tolerance between methadone and other opioids makes dosing during opioid conversion complex.
- A high degree of tolerance to other opioids does not eliminate the possibility of methadone overdose.1

Pain relief duration v. half life

- While methadone's duration of analgesic action for single doses (4-8 hours) approximates that of morphine, the drug's **half-life is substantially longer** than that of morphine (8-59 hours vs. 1-5 hours).

- Risk of accumulation; deaths after 2 to 3 days

Respiratory Depression

- Methadone's peak respiratory depressant effects typically occur later, and persist longer, than its peak analgesic effects.

- This is due to an accumulation of the methadone and a dose related respiratory depression

Methadone Cardiotoxic?

- Death and life-threatening adverse effects—particularly respiratory depression, **QT prolongation**, and Torsades de Pointes—in patients taking methadone.

- Two reasons why detox and drug rehab centers are avoiding methadone use and using the partial agonist buprenorphine (Suboxone)

Don’t use in opioid naïve patient

- consider designating all patients as opioid-naive for the purposes of introducing methadone, no matter how much opioid medication they’ve previously been taking.
- To start, consider a conservative conversion ceiling dose of no more than 20 mg/day (10 mg/day for elderly or infirm patients).