Medication Management in Assisted Living
A Best Practice Review

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DISCLOSURE / CONTACT

Disclosure:
- Remedi SeniorCare
- Clinical Advisory Board – Institute for Safe Medication Practices (ISMP) LTC Newsletter

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“Welcome to the ISMP Long-Term Care Advise-ERR, a medication safety newsletter designed specifically to meet the needs of administrators, nursing directors, and nurses who transcribe medication orders, administer medications, monitor the effects of medications on residents, and/or supervise those who carry out these important tasks.”

http://www.ismp.org/Newsletters/longtermcare/default.aspx

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Death Associated with Unnecessary Continuation of Venous Thromboembolism (VTE) Prophylaxis After Hospital Discharge
Your Reports at Work: FDA tells pen injector needle manufacturers to improve patient instructions
 Entire bottle of nitroglycerin given, again!
 Don’t “hold” onto that patch!
 Unsafe practice abound!
WOULD YOU ADMINISTER?

- New admission: Digoxin 5 mg tid
- Amoxicillin 500 mg bid (Allergy to PCN)
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- Coumadin 5 mg qd (INR 14)
- Symbicort inhaler 2 puff bid (4 months old)
- Synthroid 125 micrograms qd (after breakfast)
WOULD YOU ADMINISTER?

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- Coumadin 5 mg qd (INR 14)
- Symbicort inhaler 2 puff bid (4 months old)
- Synthroid 125 micrograms qd (after breakfast)
- Lasix 20 mg qd pedal edema (poor po intake)
- Enteric coated Asprin 325 mg qd (crushed)
Numbers Expected to Rise

- The numbers of adverse drug events will likely grow due to:
  - Development of new medications
  - Discovery of new uses for older medications
  - Aging American population
  - Increase in the use of medications for disease prevention
  - Increased coverage for prescription medications

<table>
<thead>
<tr>
<th>Most common ADRs</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastrointestinal</td>
<td>Gastrointestinal bleeding, peptic ulcer,</td>
</tr>
<tr>
<td>complications</td>
<td>erosive gastritis, nausea, vomiting</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Hypotension, bradycardia, falls,</td>
</tr>
<tr>
<td>disorders</td>
<td>anemia</td>
</tr>
<tr>
<td>Metabolic/endocrine</td>
<td>Hyponatremia</td>
</tr>
<tr>
<td>complications</td>
<td></td>
</tr>
<tr>
<td>Renal and urinary</td>
<td>Renal impairment, acute renal failure</td>
</tr>
<tr>
<td>disorders</td>
<td></td>
</tr>
<tr>
<td>Electrolyte disorders</td>
<td>Hyponatremia, hyperkalemia, hypokalemia</td>
</tr>
<tr>
<td>Nervous system</td>
<td>Depressed level of consciousness, mental</td>
</tr>
<tr>
<td>disorders</td>
<td>status changes</td>
</tr>
</tbody>
</table>
Aging Impact on Medications

- Physiological Changes
  - Medication Distribution
    - Decrease in total body mass, increase in proportion of body fat
    - Decrease in proportion of body water
    - Decrease in plasma protein
  - Medication Metabolism
    - Reduction in liver mass, blood flow, metabolic capacity
  - Medication Excretion
    - Reduction in glomerular filtration, tubular function, renal blood flow

POLYPHARMACY
HIGH RISK DRUGS → HOSPITALIZATIONS

- Anticoagulants
- Antibiotics
- Diuretics
- Hypoglycemic agents
- NSAIDs
- Digoxin
- Antineoplastic agents

“Assisted living facilities are nursing homes in denial.”
- Mayer Handelman R.PH.
When You Hear Hoof beats, Think Horses not Zebras!

78 year old female

- IDDM
- HTN
- CRI
- A Fib
- CAD
- R BKA
- Anemia

Admitted from home March 16

- Due to:
  - Frequent falls
  - “weak” legs
  - Orthopnea / PND
Medications

• Coumadin 1 mg qd
• Vasotec 5 mg bid
• NTG patch .4 mg qd
• Lipitor 10 mg qd
• Folic acid 1 mg qd
• Lasix 40 mg qd
• Insulin NPH 20 units AM, 10 units PM

Seen by MD March 18

• DX: CHF
  • Rales
  • Edema

  • Increase Lasix to 40 mg bid
  • Zaroxolyn 5 mg 3x/week
  • Digoxin .125 mg qd

Care Plan – March 18

• Potential for injury R/T drug toxicity secondary to Digoxin
  • Observe for signs of toxicity
    • Nausea/vomiting
    • Anorexia
    • Visual disturbances
    • Abdominal pain
    • Bradycardia
Initial labs – March 19

- WBC 6.4 k
- Hct 30.6%
- Glucose 264 mg/dl
- BUN 37 mg/dl
- Cr 1.5 mg/dl
- INR 1.58

March 16 - March 31

- Alert, oriented x 3, verbal
- Appetite good
- OOB in wheelchair
- Active in PT/OT
- No acute distress

Pharmacy review – March 31

- Recommend Dig level q 6 months
  - Not seen by MD until April 16, 2001
April 1 – Day 14 of Digoxin

• c/o nausea
• “I feel sick in my stomach, I can’t eat anything”
• On-call Physician contacted
  • Compazine 25 supp q 12 PRN N/V
  • Mylanta now and q 8 hours PRN nausea

"Any symptom in an elderly patient should be considered a drug side effect until proved otherwise."

Potential for injury R/T drug toxicity secondary to Digoxin
Observe for signs of toxicity

Nausea/vomiting
Anorexia
Visual disturbances
Abdominal pain
Bradycardia
April 2 – Day 15 of Digoxin
• c/o blurred vision, dizziness, headache
• Vomited x 1
• Attending MD contacted
  • Will be in to see resident on April 4

Potential for injury R/T drug toxicity secondary to Digoxin
Observe for signs of toxicity
  Nausea/vomiting
  Anorexia
  Visual disturbances
  Abdominal pain
  Bradycardia

April 4 – Day 17 of Digoxin
• Examined by attending physician
  • c/o blurring of vision, nausea, vomiting, abdominal discomfort, constipation x 4 days
  • PE WNL
Potential for injury R/T drug toxicity secondary to Digoxin
Observe for signs of toxicity
- Nausea/vomiting
- Anorexia
- Visual disturbances
- Abdominal pain
- Bradycardia

April 4 – Day 17 of Digoxin
• Physician Orders
  • Urgent ophthalmology consult
  • Prilosec 20 mg bid – gastritis
  • Lactulose 30 cc x 1 - constipation

April 5 – Day 18 of Digoxin
• Therapy note
  • “Pt c/o increased weakness past 4 days (nsg aware). Unable to participate with skilled PT services. Pt has primarily been staying in bed. D/C skilled services secondary to changed medical status.”
April 5 – Day 18 of Digoxin

• MD Order
  • “Hold skilled OT/PT until pt is medically stable”

April 5 – Day 18 of Digoxin

• Nurses write:
  • Continues to c/o nausea
  • One episode of vomiting
  • Appetite poor

April 6 – Day 19 of Digoxin

• “c/o abdominal pain and nausea, compazine given”
• “resident wishes to remain in bed for the day”
April 6 – Day 19 of Digoxin

• Labs
  • Glucose 74 mg/dl
  • NA 132 meq/L
  • K 3.5 meq/L
  • BUN 125 mg/dl
  • Cr 2.9 mg/dl

How is Digoxin excreted?

• Attended Called with lab results
  • Hold Lasix X 3 days
  • Repeat Labs in 3 days
  • Give additional fluid & record
    • 240 ml on each tray
    • 240 ml at 10 am, 2 pm, 8 pm
April 7 – Day 20 of Digoxin

• c/o nausea on all three shifts
• vomited x 2
• appetite poor

• On call physician contacted, No New Orders

April 8 – Day 21 of Digoxin

c/o nausea → PRN Compazine

Sick since April 1

April 9 – Day 22 of Digoxin

• nausea continues – Compazine given
• appetite poor
• c/o “not feeling well”
April 9 – Day 22 of Digoxin

• Lab results:
  • BUN 124 mg/dl
  • Cr 2.7 mg/dl
  • Na 139 meq/L
  • K 3.8 meq/L

Attending MD called
  • Hold Zaroxlyn
  • Chem 7 in 2 days
  • No IVF
  • “I will come in and see her today”

Physician fails to come in and examine the resident
April 10 – Day 23 of Digoxin

• Continued c/o nausea, vomiting and abdominal pain
• MD order
  • “transfer to hospital for abnormal labs …”
    (lab results from April 9)

April 10 – Day 23 of Digoxin

• Arrives at community hospital in ‘critical condition”
• Promptly transferred to university medical center

April 10 – Day 23 of Digoxin

• Hospital Admission
  • Digoxin toxicity
    • 3.8 ng/dl (.8 –2.0 ng/dl)
    • pulse 20 – 30 bpm
  • Dehydration (BUN-132, Cr–2.6)
    • Vomiting
    • Decreased intake
    • Overdiuresis
Potential for injury R/T drug toxicity secondary to Digoxin
Observe for signs of toxicity
  Nausea/vomiting
  Anorexia
  Visual disturbances
  Abdominal pain
  Bradycardia

Hospital Course
  • ICU
  • IVF
  • Digibind
  • Pacemaker considered
    • Returned to facility x 3 days

You’re Now the Surveyor
  • MD
  • Nursing
  • Pharmacy
  • Dietary
"Any symptom in an elderly patient should be considered a drug side effect until proved otherwise."

HIGH RISK DRUGS

- Anticoagulants
  - Clinical / laboratory monitoring
    - INR, HCT
  - Stool
  - Administration errors (see above)
  - Falls
  - Drug interactions
  - Duration of therapy

HIGH RISK DRUGS

- Antibiotics
  - Allergic reaction
  - Under treatment
  - C. diff
HIGH RISK DRUGS

• Diuretics
  • Dehydration
  • Pedal edema
  • Electrolyte imbalance

HIGH RISK DRUGS

• Hypoglycemic agents
  • Oral agents
  • Insulin
  • Administration errors
  • Infection → po intake
  • Steroids

HIGH RISK DRUGS

• NSAIDs
  • GI bleed
  • Kidney damage
HIGH RISK DRUGS

• Digoxin
  • Narrow therapeutic index
  • Indication
    • Beers list (avoid as first line treatment A. fib / heart failure)
  • Toxicity
    • Potassium
    • Pulse?
68 Year Old Female

- Admitted on March 29
- Diagnosis
  - Chronic neurogenic pain
  - Severe osteoarthritis
  - H/O breast cancer

Admission Orders

"Kadian 10 mg bid for chronic pain"
Medication Administration Record

- Kadian 10 mg
  - March 30: 9 am & 9 pm
  - March 31: 9 am & 9 pm
  - April 1: 9 am (pm dose blank)
  - April 2: 9 am (pm dose blank)

Nurses’ Notes

Resident’s clinical course was uneventful from admission (March 29th) through April 2nd

April 2nd at 11:30 PM

“Resident pale, responsive only to tactile stimuli, skin warm and dry, vital signs:
  T 100.2, P 90, R 16, [no BP noted], pulse ox = 80%, oxygen started, 911 called”
**Hospital Course**

**Diagnosis** = morphine overdose  
Kadian discontinued  
Narcan administered  
Monitored and supportive care  
Discharged on hospital day 5

During an interview with the pharmacy’s general manager on 6/10/10, he acknowledged that the pharmacy made an error and dispensed 6 doses of Kadian 100 milligrams rather than the 10 milligrams that was ordered. The general manager researched the error and the following was discovered. The front of the medication punch card stated the name and dosage of medication to be the following: Kadian (Morphine Sulfate) 100 mg. However, on the reverse side of the card each capsule had a foil back that indicates each capsule as Kadian 10 mg. The research determined that the computer program that creates the foil backs was incorrectly setup. Kadian 100 mg had been incorrectly associated with 10 mg, meaning when a bottle of Kadian 100 mg is scanned it was producing 10 mg foil backs.

**Medication errors = system errors**  
Checks / Balances
SAFE MEDICATION PRACTICES

• Evidence based
• Risk / benefit analysis
• Resident centered

(all of the above preferably documented)

SAFE MEDICATION PRACTICES

Non-Pharmacologic Interventions

SAFE MEDICATION PRACTICES

Informed Consent
SAFE MEDICATION PRACTICES
Start Low, Go Slow and Follow

SAFE MEDICATION PRACTICES
“Any symptom in an elderly patient should be considered a drug side effect until proven otherwise”


SAFE MEDICATION PRACTICES
Gradual Dose Reduction
SAFE MEDICATION PRACTICES

Communication

SAFE MEDICATION PRACTICES

Resources

CDC report finds 12 patients likely infected with hepatitis C by drug-using nurse

It Takes A Village