Pharmacology

Self-Study Manual for Nurses

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Approved by:
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&
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The Whys and Wherefores

Before the introduction of Thorazine (chlorpromazine) in the 1950s, State Hospitals admitted thousands of “incurable” psychotic patients, who, more often than not, were “warehoused” till their dying days. These institutions were so large; they resembled small towns, often growing their own food on patient-worked farms and dairies. They had their own carpentry shops, laundries, even their own surgeries. They also had, perhaps sadly, their own cemeteries. But with the advent of Thorazine, no less a miracle drug than penicillin, the incurable found reprieve from the devastating psychotic symptoms that had held them so long in their madness. And while Thorazine (and all the other antipsychotics) does not actually cure psychosis, they do give the individual a fighting chance. The hospitals began to see their populations decrease dramatically, as those once captive were able to return to the community. They were able, at long last, to go home.

From Thorazine, came many other so-called anti-psychotropic medicines, mostly to our benefit. But, like all medications, there are potential side effects. Some side effects are mild while others are severe, even life threatening. A few of the more common side effects associated with antipsychotic medications includes: weight gain, hyperglycemia, sedation, involuntary muscle movements, sexual dysfunction, hypotension, dry mouth and constipation.

The purpose of this Pharmacology Self-Study Manual for Nurses is to provide the licensed nurse with what should be a review of common medicines used in State Hospital settings, their many and varied uses and their sometimes serious side effects. The manual is certainly not exhaustive, but should provide the nurse with a select overview of the hospital’s formulary.

The objectives of this Pharmacology Self-Study Manual are, not only to help the nurse pass the requisite medication exam with an 85% or better, but, upon completion, the nurse should be able to 1) Identify medications frequently used in the mental health setting, 2) Identify side effects of various medications, 3) Identify potentially hazardous medication combinations, and 4) Identify normal lab values related to medications.

But before we begin...
A Brief Review of the Symptoms of Schizophrenia

The symptomatology of schizophrenia is divided into three broad categories.

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hallucinations (typically auditory)</td>
<td>Social withdrawal</td>
</tr>
<tr>
<td>Delusions (e.g. – paranoia)</td>
<td>Emotional withdrawal</td>
</tr>
<tr>
<td>Thought Disorder (e.g. -Disordered thinking/speech)</td>
<td>Lack of motivation</td>
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<tr>
<td>Disorganized behavior (e.g. – agitation)</td>
<td>Poverty of speech</td>
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<tr>
<td></td>
<td>Blunted affect</td>
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<td></td>
<td>Poor insight</td>
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<td></td>
<td>Poor self-care</td>
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</table>

Cognitive

Difficulty paying attention
Memory problems
Problems processing (understanding information)

Notice, please, that the negative symptoms take something away from the sufferer. The negative symptoms isolate the schizophrenic individual. The negative symptoms rob that person of his or her life.

Also, while not generally considered a core symptom of schizophrenia, individuals with schizophrenia also have affective symptoms: depression, irritability or mood swings.

The Antipsychotics

Today, antipsychotic medications are generally divided into two broad categories. The first-generation antipsychotics (of which Thorazine is the patriarch) are commonly known as the conventional antipsychotics. The second-generation antipsychotics are known as atypicals.

Although challenged by some studies, it is commonly thought that while the conventional antipsychotics are exceptional at ameliorating the positive symptoms of psychosis, they don’t have much impact on the negative symptoms of schizophrenia, those symptoms that prevent or greatly complicate that universal need—human-to-human interaction. The atypicals claim to alleviate both the positive and negative symptoms. Some of the atypicals have also been approved for use in bipolar mania and some depressive disorders.
Commonly Used CONVENTIONAL ANTIPSYCHOTICS

- **Haldol (haloperidol):** Available in pill and liquid formulations, short acting IM formulation, and a long-lasting (4 weeks) Haldol Decanoate injection for deep IM/large muscle (e.g., Dorsogluteal).
- **Prolixin (fluphenazine):** Available in pill and liquid formulations, short acting IM formulation, and a long-lasting (3 weeks) Prolixin Decanoate injection (which can be administered both IM and subcutaneously).
- **Trilafon (perphenazine):** Available in pill formulation
- **Thorazine:** Available in pill, liquid and short acting IM formulations

**Potential Adverse Effects:**

*The following is an alert for all antipsychotics:
[ALERT! Black Box Warning – increased mortality in elderly individuals with dementia-related psychosis.]

- **Extrapyramidal Symptoms (EPS):** Include symptoms such as akathisia, dystonia, and pseudoparkinsonism. These adverse effects can be successfully treated with Benadryl,Cogentin, or Artane (see below “Anticholinergics & Diphenhydramine”). Many prescribers use one of these medicines routinely to prevent the occurrence of EPS. If the psychiatric nurse must medicate an individual presenting with acute dystonia, this is considered an Adverse Drug Reaction (ADR), and hospital protocol must be observed. Lowering the dosage or stopping the offending medicine altogether may be indicated. Sometimes a beta blocker like Inderal (propranolol) or a benzodiazepine is used.

- **Tardive dyskinesia** – is a long-term side effect of anti-psychotic medications and usually consists of involuntary muscle movements of the face or extremities. It is generally believed that if the condition is caught early, it can be reversed with medication withdrawal. This is why the AIMS test is important.

- **Neuroleptic Malignant Syndrome (NMS):** Is a rare reaction to antipsychotics and it can be fatal if not caught and properly treated early in its development. The primary symptoms of NMS include “lead pipe” rigidity, hyperpyrexia (high fever), and autonomic instability (dysrhythmias, fluctuations in blood pressure). Treatment includes immediate withdrawal of the offending agent and supportive measures to maintain homeostasis. NMS is a medical emergency and any individual exhibiting symptoms consistent with NMS must be evaluated by a physician immediately.

*Mnemonic for NMS: **FALTER**: Fever, Autonomic instability, Leukocytosis, Tremor, Elevated enzymes like CPK, and Rigidity of muscles*
Orthostatic Hypotension is the significant drop in blood pressure when an individual stands from a sitting or lying position. Treatment involves decreasing or changing the offending agent and/or nursing measures, such as educating and demonstrating to the individual how to slowly rise to a standing position.

Sedation, especially during initiation of the antipsychotic, is not uncommon. Fortunately, it is, more often than not, a transient phenomenon.

Agranulocytosis, while rare, is a potentially fatal untoward effect. Be alert for signs and symptoms of infection.

Dry mouth and photosensitivity are common.

Commonly Used ATYPICAL ANTIPSYCHOTICS

Abilify (aripiprazole) - both pill & short-acting IM formulations
Clozaril (clozapine) - pill formulation only [ALERT! Routine blood work (white blood cell count) is needed to monitor for agranulocytosis.]
Fanapt (iloperidone) – pills only
Geodon (ziprasidone) – both pills & short-acting IM formulations. [ALERT! PO medicine must be given with food for maximum absorption.]
Invega (paliperidone) - both pills and long-acting IM (Sustenna) formulations
Latuda (lurasidone) - pills only [ALERT! medicine must be given with food for maximum absorption.]
Risperdal (risperidone) - pills, sublingual tablets, liquid and long-acting IM (Consta) formulations
Seroquel (quetiapine) - pill formulation
Saphris (asenapine) - sublingual tablets
Zyprexa (olanzapine) - pills, sublingual tablets and short-acting IM formulations.

Potential Adverse Effects:

In addition to the adverse effects commonly seen with conventional antipsychotics, individuals taking atypical antipsychotics are more likely to develop these additional adverse effects.

weight gain
new-onset diabetes
Dyslipidemia
Agranulocytosis
A Brief Review of the Symptoms of Mania

Australian psychiatrist, John Cade, first linked lithium to the alleviation of manic symptoms in 1949. Lithium, a simple inorganic ion found on the periodic table of elements, was not approved for use in the United States until 1970. In the dark days of psychiatry, (esp. the 19th and early 20th Centuries, but certainly before), people died from mania, their death certificates listing “manic-depressive exhaustion" or "lethal catatonia” as cause of death.

A pure manic episode, also called a euphoric episode, presents as a persistently heightened, expansive or irritable mood. The manic person can talk nonstop for hours, their speech is rapid and pressured, shifting from topic to topic. Subjectively, the manic individual will say that their thoughts are racing, “going a million miles an hour.” These folks get very busy, writing not one book, but two, opening not one restaurant, but a whole chain of them. They need little or no sleep. They are extremely confident, feeling invincible (it is because of this, many individuals don’t want the mania to go away, and therefore may not take their medication). This can lead to engaging in high-risk activities, such as indiscriminant sex, exorbitant spending-sprees, and other unsafe behavior that may lead to negative outcomes, even death. Manic individuals can even display psychotic symptoms like hallucinations or delusions.

During a manic episode in someone with bipolar disorder, elevated mood can manifest itself as either euphoria (feeling "high") or as irritability. Abnormal behavior during manic episodes includes:
- Flying suddenly from one idea to the next
- Rapid, "pressured," and loud speech
- Increased energy, with hyperactivity and a decreased need for sleep
- Inflated self-image
- Excessive spending
- Hypersexuality
- Substance abuse

Anticholinergics & Diphenhydramine

+ As mentioned above (“Commonly Used CONVENTIONAL ANTIPSYCHOTICS”), sometimes these drugs, benztropine (Cogentin) & trihexyphenenidyl (Artane), both centrally-acting anticholinergics, are used to treat emergent EPS or used routinely to prevent an occurrence of EPS.

+ Diphenhydramine (Benadryl), an H₁ antagonist, commonly used for urticaria, is also used for these reasons.
Commonly Used MOOD STABILIZERS

Note: the medicines listed here include, not only lithium, but anticonvulsants and antipsychotics. These medicines are being used more and more to treat, not only bipolar illness, but as adjunctive treatment for major depressive disorders, as well.

- Lithium Carbonate – capsules, pills, sustained-release tablets, liquid formulations. [ALERT! NSAIDs can ↑ plasma lithium levels, diuretics can ↑ plasma lithium levels, calcium channel blockers, like Norvasc and Cardizem, can cause ↑ lithium levels]
- Abilify (aripiprazole)
- Depakote (valproic acid) – pill, delayed-release tablets, liquid and ‘sprinkle’ formulations
- Geodon (ziprasidone) [ALERT! Must be given with food.]
- Lamictal (lamotrigine) - pill formulation only [ALERT! Rash that might be associated with Stevens-Johnson Syndrome.]
- Tegretol (carbamazepine) – pills, sustained release tablets and chewable tablets [ALERT! Tegretol can ↑ plasma levels of Dilantin. Carbamazepine can ↓ plasma levels of acetaminophen, theophylline, warfarin, and haloperidol.]
- Risperdal (risperidone)
- Zyprexa (olanzapine)
- Seroquel (quetiapine)

Potential Adverse Effects:

We have sufficiently covered the major untoward responses to atypicals, but let’s take a look at lithium, valproic acid, lamotrigine, and carbamazepine.

Lithium has a very narrow therapeutic range; not enough, you’ll get no relief, too much and you can become toxic and, conceivably, die. You will need to know this: the therapeutic window for plasma lithium is between

\[ 0.6 \text{ mEq/L} \text{ and } 1.4 \text{ mEq/L}. \]

Even at therapeutic doses, the nurse (and individual, of course) might notice a fine hand tremor, transient weakness, headache, ataxia, polydipsia, polyuria, and GI upset. Lithium can even be toxic to the kidneys at therapeutic levels. At levels greater than 2.5 mEq/L death has been reported; early signs of toxicity being nausea, vomiting, diarrhea, confusion, incoordination, blurred vision, progressing to grand mal seizures and death.

The anticonvulsant medicine Depakote (valproic acid) has fewer side effects, and has a higher therapeutic index. It is not, unfortunately, unusual to see weight gain (often the reason people stop taking it). Nausea, stomach upset, sedation and hair loss are other side effects of valproic acid.
Tegretol (carbamazepine), was approved, in 2005, for use in bipolar disorder. Neurologic side effects, like unsteadiness, headache, and some visual disturbances, are not uncommon at the medicine’s initiation. Fortunately these are transient in nature. Agranulocytosis, elevated liver enzymes and rashes are additional side effects. Tegretol also requires routine serum levels.

Lamictal (lamotrigine) was approved in 2003 for use in bipolar disorder. No blood work is needed to monitor serum levels (unlike lithium, valproic acid, and carbamazepine). Lamictal has been implicated in the sometimes fatal Stevens-Johnson Syndrome. The individual and nurse should be especially aware of the development of any rashes.

Commonly Used ANTIDEPRESSANTS

Commonly used older generation antidepressants
  o Desyrel (trazodone) – tetra-cyclic
  o Remeron (mirtazapine) - tetra-cyclic
  o Amitriptyline (Elavil)
  o Nortriptyline (Pamelor)
  o Imipramine (Tofranil)
  o Despramine (Norpramin)

Potential Adverse Effects:

These medicines have been on the market for many years. They are effective and relatively cheap compared to the newer antidepressants.

However, they are easy to overdose on, the most serious problem being cardiac toxicity. Individuals often have poor adherence with these medications because of side effects such as: sedation, orthostatic hypotension, and anticholinergic effects (like dry mouth and constipation).

+++ Commonly used newer generation antidepressants

  o Celexa (citalopram)
  o Lexapro (escitalopram)
  o Paxil (paroxetine)
  o Prozac (fluoxetine)

These are the selective serotonin reuptake inhibitors (SSRIs). Side effects are much more tolerable and death by overdose is extremely rare. Common side effects include: nausea (transient), agitation/insomnia, and sexual dysfunction (esp. anorgasmia).
The individual (and nurse) should be aware of a collection of symptoms called the serotonin syndrome. This occurs when there is a concurrent use of other serotonergic drugs (e.g., Prozac + Ultram).

+++ 

**Other commonly used antidepressants**

- Cymbalta (duloxetine)
- Effexor XR (venlafaxine)
- Wellbutrin XL (bupropion)

**Potential Adverse Effects:**

Cymbalta (duloxetine), a dual serotonin and norepinephrine reuptake inhibitor (SNRI), is used not only as an antidepressant, but also for diabetic peripheral neuropathy, fibromyalgia, and osteoarthritis. It shares its side effects with the SSRIs.

Effexor XR (venlafaxine) is also an SNRI.

Wellbutrin XL (bupropion) works on norepinephrine and dopamine. Its notable side effects include, but are not limited to: weight loss, insomnia, dizziness, hypertension and seizures.

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**Commonly Used Drugs for ANXIETY**

It has been said that we go to our doctors for two reasons: pain and anxiety. And we want these unpleasant phenomena to go away now, not later. Anxiety, while itself a diagnosis, is also a component of many other psychiatric diagnoses.

Some of these medicines (like benzodiazepines), work quickly, which is, of course, what we want. However others, (BuSpar and the antidepressants), take a week or two to kick in.

- BuSpar (buspirone)
- Xanax (alprazolam)-benzodiazepine
- Valium (diazepam) -benzodiazepine
- Ativan (lorazepam) -benzodiazepine
- Vistaril (hydroxyzine)-antihistamine
- Antidepressants (as a class)
- Antipsychotics (if the anxiety is associated with a psychosis)
Potential Adverse Effects:

Buspirone, classified as an anxiolytic, is unlike the benzodiazepines in that 1) its therapeutic effects are delayed 2-4 weeks, 2) (then why use it?) it does not possess the risk of addiction, as do the benzodiazepines, 3) unlike the benzodiazepines, BuSpar’s ability to check anxiety does not decrease with prolonged use, and 4) BuSpar does not impair attentiveness or mental alertness. Notable side effects include dizziness, headache, sedation, and nervousness. Fortunately, these are transient phenomena.

Benzodiazepines, carry the risk of tolerance (needing increasingly higher doses to gain the same effectiveness) and dependence (characterized by withdrawal syndrome if the medicines are abruptly stopped or decreased after extended use). They are sedating, can cause forgetfulness and confusion.

Hydroxyzine, an antihistamine, is often used to treat anxiety. Its side effects are like any other antihistamine: sedation, tremor and dry mouth.

Try as We Might, We Cannot Separate the Psyche From the Soma

Psychiatric Nursing is Medical Nursing. We must address not only the mind, but the body.

The following medicines are not meant to provide the nurse with a full course of pharmacology, but this manual will touch on other drugs often prescribed in the psychiatric setting.

Department Policy: Bowel Elimination

- The licensed nurse(s) is responsible to monitor each individual’s bowel functions and ensure documentation is completed in the medical record.

- If the individual has not had a bowel movement recorded in three (3) days or has positive signs and symptoms of constipation/impaction/bowel obstruction, the nurse will perform an abdominal assessment to include auscultation and palpation.

- The nurse’s findings are reported to the clinician.
Commonly Used Drugs for CONSTIPATION & OTHER GI PROBLEMS

It is not uncommon for psychotropic medicines to predispose the individual to constipation. Prevention is preferred, intervention is often necessary. One nursing measure that can address complaints of constipation is to educate the individual on bowel habits, importance of fluid intake, proper diet high in fiber and physical activity.

- Surfak/Colase (docusate sodium)- stool softener for constipation
- Pepsid (famotidine)- antacid for gastric reflux
- Prilosec (omeprazole)- antacid for gastric reflux
- Milk of Magnesia (magnesium hydroxide)- for constipation
- Maalox (simethicone)- for upset stomach
- Dulcolax – laxative
- Ex-Lax – laxative
- Miralax – stool softener
- Tagamet (cimetidine)- antacid
- Zantac (ranitidine) - antacid

Potential Adverse Effects:

Some individuals can become dependent on laxatives.

Some antacids (e.g., mylanta) can interfere with the dissolution and absorption of many drugs. These medicines should be administered at least two (2) hours apart from one another.

Protocol for Nursing Care of the Hypertensive Individual

Hypertension is defined as a systolic pressure equal to or greater than 140 mmHg or a diastolic blood pressure equal to or greater than 90 mmHg on at least two subsequent occasions.

\[
\begin{align*}
& \text{Systolic pressure} > 140 \text{ mmHg} \\
& \text{and/or} \\
& \text{Diastolic pressure} > 90 \text{ mmHg}
\end{align*}
\]

The nurse in charge of the individual’s care should re-check the findings with a manual cuff. Document all readings and interventions in the medical record. Any abnormal blood pressure is to be reported to the clinician immediately.
Commonly Used Drugs for HYPERTENSION

- Apresoline (hydralazine)
- Coreg (carvedilol)
- Hydrodiuril (hydrochlorothiazide)
- Inderal (propranolol)
- Lasix (furosemide) (used chiefly for congestive heart failure (CHF), but sometimes as an antihypertensive)
- Lopressor (metoprolol)
- Norvasc (amlodipine)
- Tenormin (atenolol)
- Zestril (lisinopril)
- Clonidine (Catapress)

**Potential Adverse Effects:**

Any antihypertensive can cause hypotension, which can have significant consequences, requiring nursing interventions and/or medical attention in one form or another.

Some common side effects are dizziness, fatigue, cough and headache. Some antihypertensives, i.e. beta-blockers should be used with caution in individuals with asthma and diabetes.

They, as a class, can also precipitate shortness of breath, insomnia, decreased libido, and, especially apropos to our patient population, depression.

Antihypertensives can also cause cardiac problems, including chest pain and dysrhythmias.

Management of Diabetes Mellitus

**Nursing Standard of Care: Diabetic Individual**

**HIGH (>250) OR LOW (<60) BLOOD SUGARS**

**Nursing Actions/Intervention:**

If a blood sugar determination is < 60 mg/dL or >250 mg/dL, a blood glucose level by fingerstick should be repeated. If the blood sugar reading is still out of this range and there is no sliding scale coverage, the physician should be notified. The nurse notifying the physician should have adequate information available for the physician to evaluate the situation (insulin dose if on insulin, sliding scale if ordered, previous glucose readings, any symptoms).
If the blood sugar is 30 – 60 mg/dL the nurse may give 10 to 15 gm of glucose or carbohydrate-containing foods or beverages such as milk, which should raise the blood glucose level 30 - 45 mg/dL. If blood glucose levels are less than 50 mg/dL, 20 - 30 gm of carbohydrate may be needed. Notify the clinician immediately.


*Remember: “Cold and clammy means you need some candy.”
“Hot and dry means your sugar is high.”

**Insulin Administration**

Insulin is considered a “High Alert” agent. Prior to administration, all insulin dosages (syringe, vial, and medication administration record [MAR]) are double-checked by a second nurse to ensure accuracy and [this] verification is recorded on the MAR to include the initials of the nurse verifying the insulin dosage.

There are many insulin formulations, all with identical mechanisms of action; however, there are major differences in onset of action (how soon they work), peak time, duration, and concentration. Insulin is administered subcutaneously, aspiration is not necessary. Sites of administration should be rotated within anatomical area; the abdomen is preferred for more rapid even absorption. Also, avoid massaging the site after injection.

Neutral Protamine Hagedorn (NPH) is an intermediate duration suspension. Most insulins can be mixed. When mixing insulins, draw up the clear (regular) insulin before the cloudy (intermediate--acting) insulin to prevent contaminating a short-acting insulin with an intermediate-acting. Lantus and Levemir, which are long acting insulins, should never be mixed.

Potential Adverse Effects:

Hypoglycemia is the most common side effect of insulin.
Types of Insulin on the Formulary

<table>
<thead>
<tr>
<th>Short Duration: Rapid-Acting</th>
<th>Short Duration: Slower Acting</th>
<th>Intermediate Duration</th>
<th>Long Duration</th>
<th>Pre-mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulin lispro (Humalog)</td>
<td>Regular insulin (Humulin R, Novolin R)</td>
<td>NPH insulin (Humulin N, Novolin N)</td>
<td>Insulin glargine (Lantus)</td>
<td>NovoLog 70/30</td>
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<tr>
<td>Insulin aspart (Novolog)</td>
<td></td>
<td></td>
<td>Insulin detemir (Levemir)</td>
<td>Humulin 70/30 Novolin 70/30</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Humalog 75/25</td>
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</tbody>
</table>

Sliding Scale
Sliding scales for insulin coverage are individualized and ordered by the clinician. The amount of insulin given is typically dependent on the value of the individual’s blood glucose.

Commonly Used Oral Drugs for TYPE 2 DIABETES MELLITUS

Reminder: We have already mentioned the potential for the development of diabetes mellitus with administration of the atypicals. The nurse will want to be cognizant of the signs and symptoms of diabetes and report this promptly to the primary caregiver. Signs and symptoms of Type 2 Diabetes Mellitus includes frequent urination, unusual thirst, extreme hunger, unusual weight loss, extreme fatigue and irritability, frequent infections, blurred vision, cuts/bruises that are slow to heal, tingling/numbness in the hands and feet, and recurring skin, gum or bladder infections. Often people with type 2 diabetes have no symptoms.

There are six classes of oral drugs that work in different ways to lower blood glucose levels in individuals with type 2 diabetes. Below is a list of each class along with examples of specific drugs within each class. Please note this list is not all-inclusive.

- Sulfonylureas – e.g., Glipizide (Glucotrol or Glucotrol XL), Glyburide (Diabeta, Micronase), Glimepiride (Amaryl)
- Biguanides – e.g., Metformin (Glucophage), Metformin Extended Release (Glucophage XR, Fortamet, Glumetza)
- Meglitinides – e.g., Repaglinide (Prandin), Nateglinide (Starlix)
- Thiazolidinediones Pioglitazone (TZDs) – e.g., Pioglitazone (Actos)
- DPP-4 Inhibitors – e.g., Sitagliptin (Januvia), Saxagliptin (Onglyza), Linagliptin (Tradjenta)
- Alpha-glucosidase inhibitors – e.g., Acarbose (Precose), Miglitol (Glyset)
In addition, there are several oral combination therapies where two medications from the list above are combined into one pill (e.g., Glucovance [Glyburide and Metformin], Janumet [Januvia and Metformin]).

**Potential Adverse Effects:**

Hypoglycemia is a possible side effect of Sulfonylureas and Meglitinides. Gastrointestinal effects such as nausea, diarrhea, bloating and cramping are common with several of the above oral agents.

**Commonly Used Drugs for HYPERLIPIDEMIA**

- Pravachol (pravastatin)
- Zocor (simvastatin)

**Potential Adverse Effects:**

Stomach upset is not uncommon. Also, monitor the individual for signs of myopathy. Periodic lab monitoring of liver function is often required.

These medicines predispose the individual to sunburn. They should also be given in the evening.

**Other Commonly Used Drugs**

- Aricept (donepezil)

**Potential Adverse Effects:**

A cholinesterase inhibitor used to treat Alzheimer’s Disease, donepezil can cause nausea, diarrhea, and bradycardia.

+++ 

- Keppra (levetiracetam)

**Potential Adverse Effects:**

An antiepileptic drug (AED), levetiracetam has been reported to cause drowsiness, and some distressing neuropsychiatric problems, such as agitation, hallucinations, depersonalization and depression.

+++ 

- Synthroid (levothyroxine)

**Potential Adverse Effects:**

Relatively innocuous when administered at appropriate doses. Overdose can cause thyrotoxicosis, which presents as tachycardia, angina, nervousness, and hyperthermia. This medicine can increase the effects of warfarin, another commonly prescribed drug.
Coumadin (warfarin)

**Potential Adverse Effects:**

Remember, many medicines and foods can negatively impact warfarin’s therapeutic affect (e.g., some antiinfectives, carbamazepine, aspirin, ibuprophen, and levothyroxine).

Individuals should be monitored closely for signs and symptoms of bleeding. Warfarin should be given in the evening and on an empty stomach.

*While our clinicians do not initiate anticoagulant therapy, the individual’s INR will be monitored.*

Finally

Medication variances happen. Even to good nurses. Today, medication variances are considered a systemic problem. Medication variances are no longer seen as solely the individual floor nurse’s glitch. Mistakes can be made at any one of the several steps between the clinician prescribing the medicine to the pharmacist dispensing the medicine to the nurse administering the medicine.

The results of monitoring medication variances have indicated that many variances occur during transcription. Be acutely aware of this. Slow down. People are depending on you.

Informed Consent must be obtained prior to administering antipsychotic medications. This applies to new medicines added to the individual’s medication regime. While several medications may be present on one single informed consent, each medication administered to the individual must have an informed consent prior to administration.

DBHDD Policy #03-505

You have chosen a noble profession. Take good care of those in your charge.