

PHARMACY NEWSCAPSULE

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Warfarin Monitoring

By Doug Englebort, R.Ph.

How often does a Prothrombin Time (PT) or International Normalization Ratio (INR) measure need to be done? Prothrombin Time (PT) is a blood test that measures how long it takes blood to clot. INR is a method of standardizing prothrombin time results in order to compare prothrombin time results among labs using different test methods.

Warfarin (Coumadin®) activity needs to be monitored by frequent blood testing. PT or INR are the lab tests that are typically performed to determine blood clotting and the dose of warfarin that is needed. The INR result is most commonly reported, and it is considered at a stable rate if it is between 2 and 3.5. The stable rate of the INR is necessary for safe warfarin use. When the INR is stable, the lab testing should normally be performed every four weeks or once a month. Health care facility staff responsible for monitoring warfarin may want to have specific procedures to assure that an INR is ordered and conducted. It may also be prudent to have specific days of the month scheduled for INRs for individuals taking warfarin.

Additional INRs should be conducted when an individual taking warfarin does not have a stable ratio. This may be indicated when warfarin is first being started, when an individual is put on a medication that interacts with warfarin, or when diet or physical condition changes.

Initiation of Warfarin

Dosing of warfarin must be individualized. Typically for the elderly, a loading dose is NOT recommended and a low initiation dose, such as 2-5 mgs, is usually recommended. A baseline INR is typically obtained. Often, individuals who need rapid coagulation coverage are started on heparin or low molecular weight heparin at the same time the warfarin dosage is initiated. With or without heparin or low molecular weight heparin, the initial INR should be conducted within 2-3 days of initiating Warfarin. After the initial INR, follow-up INRs may be conducted daily in some settings, like hospitals, or every 2-3 days in other settings. Once the INR is stable for two consecutive readings that are at least 24 hours apart, the heparin or low molecular weight heparin will be discontinued.

After the two stable INR readings are obtained, guidelines support three INRs in week one, two times in week two, weekly for four weeks, then monthly. Some guidelines indicate the

timing of INRs is dependent on each subsequent INR, patient condition, and warfarin dosage adjustment. The standard of practice for warfarin does not support simply obtaining one INR after warfarin initiation that is in the stable therapeutic range, and then going directly to the monthly INR.

Drug Interactions

There are many medications that interact with warfarin. Some medications increase the effect of warfarin, and other medications decrease the effect. In most cases, if a medication is added that interacts with warfarin, an INR should be checked in 2-3 days as is recommended when there is a dose change or when warfarin is first started. Subsequent INR readings will be dependent on those initial readings and the length of time the medication interacting with warfarin will be used. Typically, INR readings should be done every 2-3 days while on the offending medication until there is evidence that the medication interaction is stable.

Resident Condition

Nutritional changes can play a significant role in an individual's warfarin responses. This can include changes in eating habits or diets, addition of dietary supplements, situations where nausea and vomiting occur and eating decreases, or when IV therapy occurs. It is very important that when these situations occur; notification is provided to the physician, pharmacist, and/or those who are monitoring the warfarin via INR. The INR should be checked in 2-3 days in these instances, just like during a medication interaction or after warfarin initiation. Subsequent INR readings will be dependent on the resident condition and INR readings.

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New Drugs

Brand Name	Generic Name	Use
Altabax	Retapamulin	Antibiotic ointment for topical treatment of impetigo.
Soliris	Eculisumab	Inhibitor to reduce anemia in patients with paroxysmal nocturnal hemoglobinuria.
Tekturna	Aliskiren	Medication for the treatment of hypertension.
Tykerb	lapatinib	A Kinase inhibitor used with capecitabine for advanced breast cancer.
Janumet	Sitagliptin/metformin	Combination of medications for type 2 diabetes.
Vyvanse	Lisdexamfetamine	A dextroamphetamine for ADHD.

Drug of the Month By Doug Englebort, R.Ph.

Invega™ Paliperidone

Invega™ is a new antipsychotic medication that is an active metabolite of Risperdal (risperidone). In theory, the medication should work similarly to risperidone, and possibly have lower side effects. As is the case with many new medications, there is limited information about Invega™ from the short term studies that were done. There are no published studies that look at long-term use. Initially, this medication may be used for individuals with schizophrenia who do not respond to other antipsychotics.

Indications

Invega™ is an extended-release tablet that is approved for the treatment of schizophrenia. Invega™ is a major active metabolite of risperidone. Invega™ has been evaluated in a six-week placebo controlled study that demonstrated efficacy in the acute treatment of schizophrenia. If Invega™ is used for longer than six weeks; the physician should periodically reevaluate the long-term usefulness of the medication for that patient.

Dosing and Administration

The recommended dose of Invega™ is 6 mg, once a day, typically administered in the morning. The maximum recommended dose is 12 mg/day. Invega™ can be taken without regard to food intake. However, since Invega™ is an extended-release tablet, the medication must not be chewed, crushed, or divided. Dosing adjustments should be considered for individuals with decreased renal function.

Adverse Effects

The common adverse events from the medication include: Tachycardia, dry mouth, akathisia, dizziness, dyskinesia, Parkinsonism, and tremor. Side effects appear to be specifically related to the dose of the medication and appear to intensify with dosage increases.

Warnings

Invega™, like other atypical antipsychotics, carries the same warnings for neuroleptic malignant syndrome, tardive dyskinesia, hyperglycemia, and diabetes mellitus. In addition, Invega™ carries the black-box warning for the risk of increased mortality in elderly patients with dementia-related psychosis. Invega™ has not been studied for use in the elderly.

Nursing Home Guidance Update By Doug Englebert, R.Ph.

Gradual Dose Reduction or Tapering Scenarios Continued

Scenario Four

A nursing home resident had been taking citalopram for eight months. The resident has clinical depression and a previous history of severe depression. What are the requirements for dose reduction? The requirements for dose reduction in this resident include two attempts in the first year, performed in two separate quarters, with at least a month between attempts. However, the first dosage reduction can be avoided by providing a clinical rationale, along with support of clinical standards of practice, explaining why the dosage reduction would not be in the resident's best interest. Since this resident has a previous history of depression and

confirmed clinical depression, there are clinical standards of practice to support continued use.

Scenario Five

The nursing home resident has been taking zolpidem each night for eight months at bedtime for insomnia. What are the requirements for a dose reduction? If there is routine use of a sleeping medication, which is being administered longer than the manufacturer's recommendations, then there must be a taper attempted quarterly. Each quarter's dose reduction can be avoided if clinically contraindicated. Clinically contraindicated can mean there are standards of practice to support the continued use, and the physician can provide clinical rationale. In this case, there are no standards of practice to support extended use, and there is evidence the resident does not sleep three nights a week. This resident must receive a taper each quarter.

Scenario Six—A resident has taken zolpidem each night at bedtime for insomnia for eight months. What are the requirements for a dose reduction? In this case, as opposed to scenario five, the resident received a dose taper in quarter one and quarter two. Each time for a two week period during the taper, the resident had a decline in function. In quarter three there is clinical rationale related to functional improvement that can support **avoidance** of the dosage taper.

Consultant Corner By Doug Englebert, R.Ph.

Can injectable medications be used for topical purposes?

In some cases, injectable medications can be used via other routes. In some cases, injectable medications may be given orally or topically. Facility staff that use injectable medications for nontraditional routes should have clinical resource information that support that use. In addition, when these injectable medications are used via other routes; the facility staff should be sure that the vial is only used for that route, since the sterility or stability of the vial may be compromised for future injectable purposes. A good practice to ensure this happens is to label the multidose vial to indicate it should not be used for injectable purposes again or some other method should be implemented to ensure that a contaminated vial is not used.

Another important consideration is expiration or beyond-use dating of the injectable medication that is being used for nontraditional application. For example, a pharmacy may take injectable medications out of the original vial and place the medication in some other packaging to be used for oral or topical purposes. In this situation, the pharmacy should indicate that the product is no longer available for injectable use; and the labeling should now include expiration or a beyond-use date with information on how long the medication can be used. Some of those expirations are very short, while some are longer. In all cases, it is product-specific and facility staff should have data to support the expirations or beyond-use dating for all medication.