The GeriJournal

Volume 2, Number 8
August 2007
A publication of GeriatRx Pharmacy

The Ups and Downs of Warfarin Dosing

We've had a number of residents riding the Coumadin-coaster lately. Their warfarin dosage goes up one week, and down the next. Some of these dose changes have been quite substantial, and it is likely that a more conservative approach would yield more stable, predictable INRs.

Warfarin dosing can be challenging at the best of times. Drug interactions, poorly controlled blood sugars, infections, and fecal impaction, can all cause unexpected changes in INR. These confounding factors should all be considered when resident INRs change unexpectedly.

Once these potential complications have been ruled out, dosing algorithms provide excellent guidance when dose adjustments are required. I have included one such algorithm from *American Family Physician, v. 71, no. 10, 2005.* This chart shows the incremental changes required to keep the INR in the range of 2.0 to 3.0, as is required for most indications, such as atrial fib., DVT, or some forms of valvular disease. Please note that adjustments are modest, usually representing about 10% of the previous dose.

WARFARIN DOSE ALGORITHMS for desired INR range of 2.0-3.0; *no bleeding*		
INR	ADJUSTMENT	NEXT INR
< 1.5	Increase dose 10 to 20%; consider extra dose	4 to 8 days
1.5 to 1.9	Increase dose 5 to 10%	7 to 14 days
2.0 to 3.0	No Change	No. of consecutive INR's x 1 wk (max:4 wks)
3.1 to 3.9	Decrease dose 5 to 10%	7 to 14 days
4.0 to 4.9	Hold for 0 to 1 days then decrease dose 10%	4 to 8 days
5.0 to 8.9	Omit 1 to 2 doses; reduce dose 10 to 20%; Consider oral Vit K 1 - 2.5mg	Monitor frequently
>/= 9.0	Hold warfarin; give oral Vit K 5 to 10mg; Resume warfarin at lower dose when INR therapeutic	Monitor frequently

In some facilities doctors recommend fixed warfarin doses based on INR results. For example, "*if INR is 1.5 to 2.0, give warfarin 5mg po daily*". This system saves time and phone calls, but can lead to inappropriate dosing when recommendations do not keep pace with changes in maintenance dose. We also encounter orders with complex dosing schedules that may contribute to administration errors and INR fluctuations. If possible, warfarin should be given in the same dose each day. Alternate or variable daily dosing should be reserved for exceptional situations.

Go Low with ASA

ASA is one of our oldest medications, but remains one of our most valuable. It was discovered in the late 1800s, and over three trillion tablets are sold each year.

In long term care, aspirin is used principally to prevent stroke, TIAs and MIs in "at risk" individuals. The low dose formulations of 80mg (chewable) and 81mg (enteric coated) are widely accepted as having the same level of effectiveness as the 325mg tablet for these indications.

Roughly 37% of our resident population use ASA on a daily basis. Seventy-five percent of these individuals use one of the low dose ASA formulations, while 25% still use the traditional 325mg tablet strength. Since the higher dose is roughly twice as likely to cause a major GI bleed (*Circulation 2003;108: 1682-7*), it would seem prudent to reduce the ASA dose for most of the residents receiving the 325mg tablet. Residents with a history of colon cancer, or those at increased risk of developing it, may be an exception to this rule. The higher dose has protective effects if taken for ten consecutive years (*JAMA 2005;294:914-923).*

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