

## ABOUT DR. KANTER

A native of Boston, Alan Kanter received his M.D. degree from the University of Vermont in 1975. After his residency at Memorial Hospital in Long Beach he practiced internal medicine in Torrance until 1990. At that time he decided to devote his full-time to the emerging specialty of phlebology (the field of venous disorders), and took a fellowship based on European techniques recognized worldwide coincident with the introduction of ultrasound-guided sclerotherapy.

Since opening the Vein Center of Orange County, his expertise and clinical research have earned him several grants in collaboration with UCI, and a reputation as the local vein expert other doctors turn to. As a result of his published studies on the use of duplex ultrasound-guided sclerotherapy to treat saphenous-derived varicose veins, physicians from several continents have made the trip to Irvine to observe his treatment protocol. Dr. Kanter has been a frequent speaker at the American College of Phlebology's (ACP) Annual Congress, and has served on their Program Committee as well as committees of Public Education and Ethics & Professional Standards of Care. He has also been a guest speaker at numerous hospital and university CME courses, as well as phlebology meetings in Canada, England, Italy, and Australia. In recognition of these academic and clinical contributions, Dr. Kanter was granted "Fellow" ACP membership status in 2004, "Fellow Emeritus" membership status in the Australasian College of Phlebology in 2005, and full membership in the American Venous Forum in 2007.

Dr. Kanter is board certified by the American Board of Phlebology, and is also certified as a Registered Vascular Tech by the American Registry for Diagnostic Medical Sonography. Acquisition of these formal qualifications acknowledges his personal achievement of highly recognized professional standards of excellence, validating the distinguished reputation he has earned during the past twenty years in Orange County.

## ABOUT OUR OFFICE

The Vein Center of Orange County (VCOC) is conveniently located in Irvine between the 5 & 405 Freeways. Dr. Kanter performs all consultations and treatments at VCOC including a duplex examination at the time of consultation when indicated. Included on his team is a highly specialized vascular ultrasound technician who participated in the original FDA study leading to approval of endovenous laser ablation. All referring doctors are sent timely consultation summaries and follow-up notes on their patients. Specializing primarily in the medical treatment of varicose and spider leg veins, advanced out-patient treatment for venous leg ulcers is also available. Treatment of cosmetically undesirable face, chest, and hand veins is also offered. When medical necessity exists, our friendly staff will assist patients in obtaining insurance reimbursement; however, **we have opted out of Medicare**, which means Medicare patients can be treated at VCOC only if they agree to forego Medicare reimbursement. VCOC is a private fee-for-service practice, with self-supported clinical research activities since 1993. For all list of publications, brochure, or more information about our services, call 949-551-8855, or visit our [www.vcoc.com](http://www.vcoc.com) web site.

As a member of the Orange County and American Medical Associations, Dr. Kanter strongly believes that his sole focus on treating venous disorders enables him to provide the highest quality service utilizing the latest technology. As the most experienced practitioner in Southern California using ultrasound-imaged guidance to selectively treat varicose veins and their sources, physician referrals are always welcome.

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## Venous Disorders Update

An Educational Service from the Vein Center of Orange County

[www.vcoc.com](http://www.vcoc.com)

Fall/Winter 2008

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## A Message From the Founder

Welcome to the Fall/Winter 2008 issue of *Veno-gram*, an educational newsletter for the practicing physician which focuses on clinical applications of current research in venous disease. For your convenience we have recently started posting *Veno-grams* online ([www.vcoc.com](http://www.vcoc.com)), facilitating access to back issues thereby making the annual cumulative index more helpful.

Congratulations to all of you who passed the inaugural American Board of Phlebology (ABPh) board certification examination earlier this year! It shows how seriously you take your responsibility to provide competent up-to-date care to your patients. For those who waited for the "bugs to be worked out" of the first examination, you may find information on next year's test at [www.AmericanBoardofPhlebology.org](http://www.AmericanBoardofPhlebology.org). Keep your eye on the ACP's [www.phlebology.org](http://www.phlebology.org) web site for details on their board review course. After this year's experience, I am sure the 2009 review course content will be better organized for relevancy.

This issue's "Advances" column defines the standardized lower extremity venous duplex ultrasound examination. It is gratifying to see the ARDMS has formally recognized lower extremity mapping must be performed with the patient standing to elicit valid reflux findings. The point is also made an expert diagnostic examination by the treating physician is the ideal situation, leaving no details to become lost in the "chain of evidence."

"In Other News" reports on two warfarin

issues. First, unpredictable patient variation may increase the INR when acetaminophen is taken regularly by patients on warfarin. You may want to warn your patients about this interaction and more closely monitor their INR when using acetaminophen for more than two days. Second, warfarin dosing based on pharmacogenetic algorithms looks promising in helping reduce 50% of the notorious variability in warfarin treatment. Both of these issues have been added to their respective PDR product inserts.

As most of you know, our [www.vcoc.com](http://www.vcoc.com) web site helps educate patients on vein disorders and prepares your referrals prior to consultation at VCOC. We have recently completed an extensive update to modernize the site for easier navigation and hope you find it informative. Besides providing a link to the ACP web site and our own *Veno-gram* archives, it covers VCOC office policy, phlebology FAQs, professional background and qualifications, publications, before/after pictures, and a video of duplex ultrasound-guided injection.

You are encouraged to contact me with feedback and questions about the contents of our newsletter and website, suggestions for future issues, and reference requests. Best wishes to you all for a happy holiday season and better days in 2009 following the election and economic recovery.

Sincerely,

Alan Kanter, MD, RVT, FACPh  
Founder & Medical Director

## Coagulation Corner

### Acetaminophen Can Affect INR

Acetaminophen has been shown to increase the INR in some patients on chronic warfarin therapy.<sup>1-3</sup> While occasional use had no significant effect, use of > 4 grams of acetaminophen over two weeks caused a dramatic increase in INR for certain patients. Since patient susceptibility varies unpredictably through an unknown mechanism, patients should be warned and monitored more closely when ingesting regular doses of acetaminophen.

- 1.Thijssen HH et al. Paracetamol (acetaminophen) warfarin interaction: NAPQI, the toxic metabolite of paracetamol, is an inhibitor of enzymes in the vitamin K cycle. *Thromb Haemost* 2004;92:797.
- 2.Kwan D et al. The effects of acetaminophen on pharmacokinetics and pharmacodynamics of warfarin. *J Clin Pharmacol* 1999;39:68.
3. Mahe I et al. Paracetamol: A hemorrhagic risk factor in patients on warfarin. *Br J Clin Pharmacol* 2005;59:371.

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## Pharmacogenetic-based Dosing of Warfarin

Aside from many food and drug interactions with warfarin, we now have proven genotypic variations in metabolism and sensitivity to consider when dosing warfarin. Commercial tests for these single nucleotide polymorphisms (SNP) are now available, prompting the FDA to revise warfarin labeling recommending low-dose ranges for patients with such genetic variations.

Genetic testing costs \$500 and differentiates normal vs slow metabolizers of warfarin which accounts for approximately 35% of the variability in therapeutic response; when added to age and body size, these three factors together account for 50%. Several dosing algorithms have been developed and can be found at [www.warfarindosing.org](http://www.warfarindosing.org). Using such an

algorithm, a randomized study showed pharmacogenetic-guided dosing more closely predicted the stable maintenance dose with fewer adjustments and less INR testing. Unfortunately, this did not translate to improved therapeutic range INR values, which was the primary endpoint.<sup>1</sup>

Many clinical laboratories now offer “CYP2C9” and “VKORC1” SNP genotyping. Such testing may be helpful in selecting initial doses and in some patients with unexpected therapeutic responses. Whether they improve clinical outcomes is unknown. Aside from the cost savings of fewer INR tests, given the narrow therapeutic window and potential seriousness of even minor deviation with warfarin, genotyping seems worthwhile to me.

1. Anderson JL et al. Randomized trial of genotype-guided versus standard warfarin dosing in patients initiating oral anticoagulation. *Circulation* 2007;116:2563.

## ADVANCES IN TREATING VARICOSE VEINS PRE-TREATMENT DUPLEX MAPPING

Duplex ultrasound mapping is the undisputed diagnostic gold standard for most lower extremity venous disorders, haven proven its worth in guiding both surgical and non-surgical approaches for better outcomes. Its critical role in planning and directing modern endovenous thermal ablative techniques is widely accepted.

However, when the treating clinician is not the one performing the examination, one must exercise caution in interpreting reports from outside sources due to several pitfalls in this operator-dependent test procedure. The following discussion covers the potential problems and explains why we must perform our own duplex study here at VCOC before recommending treatment for varicose veins and symptoms of venous insufficiency.

First, lower extremity duplex studies have traditionally been performed in the supine position. This is appropriate for assessing deep vein thrombosis but not superficial venous reflux. For valid reflux mapping the **patient must be standing during the exam** to enlist the force of gravity. This has been the long-accepted standard for phlebologists, with superficial reflux generally defined as flow reversal lasting > 0.5 second (with the patient) in the standing position. More recently, the ARDMS has formally adopted this standard as well.

Second, most duplex studies do not **provide sufficient detail to guide effective treatment**. The observation of “saphenous vein reflux” alone without supporting data can lead to inappropriate decisions about treatment. Factors such as variation in vein caliber, presence and location of venous aneurysmal dilatations, specific tributary origins and their anastomoses with other veins, incompetent perforator veins, and duplicate trunks can play a major role in how one approaches each individual case. While some anatomy is relatively constant, there is much individual variation, especially in the popliteal fossa and posterior thigh.

Third, **additional criteria** are needed to evaluate candidates for **endovenous laser** who must have saphenous veins sufficiently

straight, deep, and uniformly large enough to accept the introducer or laser fiber. Thus, if a saphenous vein is tortuous or narrows to < 3 mm in diameter along its treatable course, laser is not a good option until smaller more flexible fibers become available. Neither is laser advisable if the target vein lies close to the surface (< 2 mm) because of unavoidable skin necrosis.

Finally, the pre-treatment duplex map **must also be current**. Should a patient postpone treatment past one year after duplex exam, it is advisable to re-study the patient to confirm the previous findings have not changed. Vein disease is progressive with new reflux channels developing over time; the decision to spare or ablate individual veins must be based on accurate up-to-date information. A patient with simple single-axis saphenous vein disease in 2008 may have multi-axis reflux sources in 2010. Since endovenous laser was not widely available until more recently, previous duplex studies did not evaluate the parameters necessary to determine suitability for this procedure.

Thus, in order to provide a cost-effective treatment which targets all reflux sources for an individual patient, the pre-treatment duplex mapping study must be all of the following:

- 1) Current,
- 2) Performed by an experienced ultrasonographer (preferably the treating clinician),
- 3) Sufficiently detailed including endovenous laser qualifications, and
- 4) Performed with the patient standing

If a study lacks any one of these prerequisites, it is inadequate and should be repeated. While patients often question the recommendation to repeat a test recently done elsewhere, a brief explanation of the above rationale is usually met with an appreciative nod. At VCOC, Dr. Kanter is certified by the ARDMS as an RVT (Registered Vascular Tech) and performs all duplex mapping exams on site himself.

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