Killers of 300,000 a Year:
DVTs, PEs Most Likely to Strike as We Age

Most deaths can be prevented by education, preventive actions

March 17, 2008 - They kill 300,000 people a year - but most of them could be prevented. They strike more than a million people every year, most of them out of the blue - and half without causing symptoms. They target the bedridden, the hospitalized, the elderly - and even some generally healthy people too. They are among those villains that are more likely to strike as we get older. But many senior citizens have no idea what they are, who gets them, or how to avoid them.

"They" are blood clots that form in the veins of the lower body, and sometimes break off and travel to the lungs, where they can be deadly. In the legs and pelvis, they're called DVTs, short for deep-vein thrombosis. If they break off and travel to the lungs they're called PEs, for **pulmonary embolisms**.

And they're just starting to get the kind of respect they've deserved all along.

Finally, after killing millions of people and causing symptoms in millions of others, DVTs and PEs have made it onto the radar screen of hospitals, government agencies and insurance companies that want to prevent as many of them as possible.

But ultimately, everyone needs to learn more about these clots, so more of them can be caught early before they become dangerous, say University of Michigan Cardiovascular Center experts who study and treat DVTs and PEs. This is especially true for people who are planning to have surgery or other treatments that will keep them off their feet for days or weeks – making their legs more prone to vein clots.

"DVTs have been overlooked as a public health threat for many decades, but they're taking center stage now in the health care community, and we hope individuals will also become more aware," says Thomas Wakefield, M.D., chief of the Section of Vascular Surgery at the U-M Medical School and a member of the U-M Cardiovascular Center. "At the same time, laboratory research is revealing more and more about these clots, and how they could be targeted by new treatments."

At the same time, the U-M Health System is leading the way in preventing DVTs and PEs in all hospitalized patients. At the end of April, a new computerized tool will make it even easier for doctors, nurses and physician assistants throughout U-M's three hospitals to evaluate patients for their risk of clots, and provide preventive care.

This tool, which grew out of a successful effort in the U-M Department of Surgery that was spearheaded by the Office of Clinical Affairs, will likely raise UMHS even further above the national average for clot prevention.

Already, more than 91 percent of Medicare patients hospitalized for surgery at UMHS receive appropriate DVT prevention within 24 hours of their operation – much higher than

the national average of 75 percent, among hospitals listed in the federal Hospital Compare database that tracks hospital quality. In all, 97 percent of U-M surgical patients receive doctor's orders for appropriate anti-clot care.

Who's at risk? *(Also read more about risk below this story)*

First, it is important for all senior citizens to know that the risk increases as your age increases.

Hospitalized patients are one of the highest-risk groups for DVTs and PEs, as are those who have a spinal cord injury or other paralysis, says Wakefield. A hospital patient's risk varies depending on the reason for the hospitalization, the seriousness of the illness and any surgery he or she might have had.

As many as half of all hip-replacement patients, for example, may develop a DVT or PE if they do not receive appropriate preventive therapy.

Cancer patients may also have a high risk due to their underlying malignancy, along with the medications they take.

At least 100,000 cases of PE occur each year in the U.S. and it is the third most common cause of death in hospitalized patients.

But clots affect many other people, and can happen outside the hospital too.

One of the most publicized risk factors for DVTs in relatively healthy people is long airplane flights, especially trans-Atlantic or trans-Pacific flights where a passenger might be sitting for many hours. Travelers on long car, bus or train rides also face risk if they don't get up and move around regularly, Wakefield notes.

Young, otherwise healthy people are also more likely to develop a DVT if they're dehydrated, pregnant (especially women on bed rest), new mothers, or are significantly overweight. Other at-risk people include members of families that have a genetic predisposition to abnormal clotting – a condition called thrombophilia. And women who take birth control pills or hormone replacement therapy also have a somewhat higher risk.

What are the signs? What can be done?

About half the time, DVTs announce their presence by causing swelling, pain, redness and tenderness in a leg or other area of the lower body near a "deep vein." DVTs are not the same thing as varicose veins or spider veins, though those two conditions can mean that a person is at risk of a DVT or PE because of chronically poor circulation in the legs.

But many DVTs go unnoticed until they break off and cause a PE. When that happens, a person might experience sudden shortness of breath or chest pain that gets worse with a deep breath or coughing. They may even cough up blood. No matter what the symptoms, PE patients must get treatment immediately, or risk dying from the effects of the clot.

To keep a PE from happening once a DVT is found, doctors will often prescribe one of several blood-thinning drugs that encourage the body to break down the DVT clot and keep

more clots from forming. Compression stockings can also be worn, to help blood move out of the legs.

In some patients, a DVT is large and dangerous enough that doctors may try to remove it by threading a tiny catheter into the vein, use a device to mechanically disrupt the clot, and infuse specialized medications to help dissolve the clot. A new clinical trial comparing this approach to blood-thinning drugs will soon begin nationally and U-M will be a site for this trial.

And in patients who have a high risk of PE and can't take blood-thinning medicines, a wire filter device to catch clots might be implanted in the vena cava, the large vein that leads from the lower body. In 1973, the first such filter was co-developed by Lazar Greenfield, M.D., who is now an emeritus professor of surgery at U-M. The "Greenfield filter" has been improved many times since then, and is still used.

To help people with DVTs, PEs and other vein-related conditions, the U-M Cardiovascular Center will soon launch a multidisciplinary clinic for venous disease. There, patients will be able to get coordinated, specialized care from vascular surgeons, interventional radiologists, vascular medicine specialists, hematologists and the U-M Anticoagulation Service, which specializes in optimizing the care of patients who need long-term blood thinning treatment with the drug warfarin or other drugs.

New clues through research

Although prevention and treatment for DVTs and PEs has come a long way in recent years, scientists and doctors still have a lot to learn about why they happen, and what the long-term risks are for someone who has already had a DVT or PE.

The U-M has a large team of researchers who study clot formation, vein wall damage caused by DVTs, and possible new treatments for DVTs and PEs. They pursue their basic-research studies in the Conrad Jobst Vascular Surgery Research Laboratory, named for a pioneer in the field of compression garments, and endowed by a gift from his wife Caroline before her death.

U-M researchers led by Peter Henke, M.D., published a paper in the Journal of Vascular Surgery on the effect of low-molecular weight heparin on DVT clots and vein wall recovery, based on research in mice. That study may have direct implications for clinical use of the drug.

Also this month, Wakefield, Henke and their colleague Daniel Myers, DVM, published a major review article on the mechanisms of vein clot formation and resolution in the journal Arteriosclerosis, Thrombosis and Vascular Biology. That paper provides evidence that inflammation plays a role in the formation of DVTs – a finding that challenges previous thinking about their origin.

For more on U-M basic vascular research, visit the Jobst Laboratory site at sitemaker.umich.edu/jobst. For more on vascular care at U-M, visit www.umcvc.org or call toll-free 1-888-287-1082.

Editor's Notes

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Doctors at the U-M Cardiovascular Center are preparing to launch a new specialized Venous Disease Clinic for people with DVTs, or vein problems that might make them prone to DVTs. They're also holding a free screening on March 28 for anyone who suspects they might have vein-related problems.

Source: Senior Citizen Health & Medicine