The Vascular Education Foundation was established to increase awareness of the dangers and severity of vascular disease through the education of both the community and healthcare professionals.

The VEU

The Vascular & Endovascular Update

Fall 2021

Pharmacotherapy and Vascular Disease

About 4100 years ago, humans first starting documenting the use of herbs and plants to treat illness, disease and injury. At the time, "physicians" accepted simple ailments like a cold as a routine part of life, but saw chronic disease, tumors and more as an invasion of the body by demons and evil spirits.

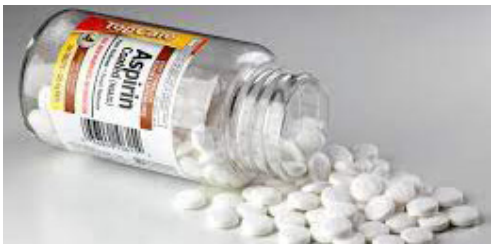
Given that belief, it's no wonder than opium poppy is one of the first recorded drugs. Opium was used in combination as a medicine, a recreational drug and in religious rites. In 1804, Friedrich Serturner extracted the active chemical from opium and named it morphine.

It wasn't until 1869 that the first synthetic drug, chloral hydrate, was created. Since then, the creation and formulation of medicines has exploded. Today, 20,000 prescription drugs are approved by the FDA to treat or prevent illness and disease in humans.

Who is "morphine" named for? Post the first correct answer on our Facebook page and we'll send you a Foundation backpack!

Of those 20,000 approved prescription drugs, many are vital in the treatment and prevention of vascular disease. When vascular disease is left undiagnosed or untreated, patients are at a much higher risk for chronic wounds, deep vein thrombosis, amputation, stroke and more. Prescribing the correct medications for your patients' health status, vascular condition and lifestyle is vital to preserving quality of life.

ANTIPLATELETS



ASPIRIN is the brand name of acetylsalicylic acid and was developed by Bayer in 1897. Natural salicylate medications have been in use for over 1,000 years. Aspirin has been in clinical use for over 100 years.

Aspirin reduces platelet clumping. It is commonly prescribed as a daily medication to reduce the risk of ischemic strokes, mini-strokes, heart attack and angina.

While aspirin can prevent an ischemic stroke, it may increase the risk of hemorrhagic stroke. It also increases the risk of stomach ulcers and life-threatening bleeding ulcers. Those allergic to aspirin should not be prescribed it.

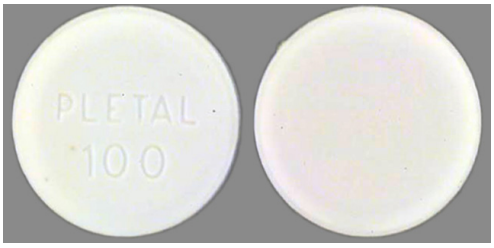
When your patient is between ages 50 and 69 with a 10% or higher risk of stroke or heart attack over the next 10 years and no bleeding risk, an aspirin daily can prevent stroke and life-changing health events.

Aspirin therapy should be carefully monitored if your patient has a history of asthma, nasal congestion or runny nose, or nasal polyps. Patients with little to no risk of stroke or heart attack should not take daily aspirin. Anyone with a history of hemophilia, ulcers or other gastrointestinal problems should not take aspirin. Do not prescribe aspirin therapy to patients with vitamin K deficiency, a history of gout, asthma, acute liver or kidney disease, including alcoholics, or aspirin sensitivity. Women in the last trimester of pregnancy should not take aspirin nor should patients scheduled for surgery within five days.

Children and young adults with

chickenpox or flu-like symptoms should NEVER be given aspirin, as they can develop Reye's syndrome, potentially fatal brain swelling.

Patients on aspirin therapy should be monitored when taking additional medications such as blood thinners such as heparin, ibuprofen corticosteroids, clopidogrel and some antidepressants.



PLETAL is the brand name of cilostazol and was approved by the FDA in 1999. Pletal is prescribed to relieve the discomfort of intermittent claudication, pain in the legs while walking that eases when resting. Pletal improves the flow of blood in the blood vessels, and makes it possible to walk longer distances before taking a break to relieve leg pain. It is a vasodilator and antiplatelet, widening the blood vessels in the legs and preventing platelets from sticking together to form blood clots.

Cilostazol also increases the risk of infection, as it lowers white blood cell counts. Some patients may experience side effects that require immediate intervention, such as allergic reactions, chest pain, a fast, slow or irregular heartbeat, signs of bleeding or swelling in ankles or legs.

Cilostazol should not be prescribed to those with any heart failure, or those who have a sensitivity to its ingredients. It may adversely interact with defibrotide. Many other drugs – warfarin, enoxaparin, aspirin, diltiazem, erythromycin/ clarithromycin, omeprazole, some depression drugs and some antifungals - may have to be adjusted if cilostazol is prescribed. Your patient must avoid grapefruit juice when taking Pletal.

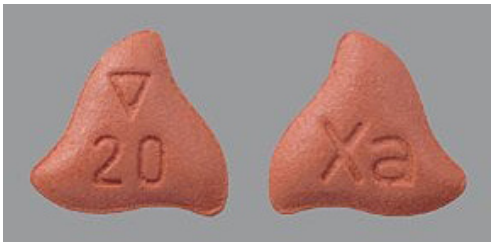
PLAVIX is the brand name of clopidogrel and was FDA approved in 1997. It works by irreversibly binding to the P2Y12 receptor on platelets, preventing adenosine diphosphate (ADP) from activating platelets and making it more difficult for platelets to clump together to form a clot. It can be used alone or with aspirin in patients who are at elevated risk of stroke, heart attack or other vascular diseases, especially those who have experienced these events, or have had severe chest pain. Clopidogrel is also used in patients who have had percutaneous coronary interventions such as angioplasty, stenting, or coronary artery bypass grafting. Patients with peripheral artery disease are also treated with clopidorgrel to prevent blood clots. It may be prescribed prior to or after a procedure such as a angioplasty, stent placement, atherectomy or bypass. It is also prescribed for patients with unstable angina.

Clopidogrel may cause bleeding or bruising, so patients should be warned to be cautious using sharp or heavy objects that can cause injury. Patients should immediately notify their physician if they notice black, tarry bowel movements, blood in the urine, or unusual bleeding.

Clopidogrel is not recommended for those with a CYP2C19 liver enzyme deficiency, or who have had reactions to the ingredients in clopidogrel. There is no evidence of risk when pregnant women are prescribed clopidogrel, but nursing mothers should not take the drug.

Do not prescribe clopidogrel to patients who are taking dasabuvir; ombitasvir; paritaprevir; ritonavir, defibrotide, or selexipag. Adverse reactions are sometimes seen when taken with medications such as warfarin, NSAIDs, repaglinide, SNRIs such as desvenlafaxine, duloxetine, levomilnacipran, venlafaxine, citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine, sertraline, or stomach acid blockers like cimetidine, esomeprazole, omeprazole.

ANTICOAGULANTS



XARELTO, also known as rivaroxaban, was FDA approved in 2011 and is still under patent. It is a factor Xa inhibitor. Rivaroxaban lowers the clotting ability of the blood to help prevent clots from forming in blood vessels.

Rivaroxaban is prescribed to treat deep vein thrombosis and pulmonary embolism. It's also used to prevent stroke and blood clots in patients with heart rhythm problems such as nonvalvular atrial fibrillation. Rivaroxaban can be prescribed with aspirin to lower your patient's risk of having a lower extremity amputation, stroke, heart attack and other

serious heart problems, especially in patients with coronary artery disease or peripheral artery disease.

Rivaroxaban is also used to prevent venous thromboembolism in your patients who are hospitalized for an acute illness. It's also prescribed after a hospital discharge to patients with mobility issues and a low bleeding risk to decrease the risk of blood clots.

Rivaroxaban may cause bleeding, especially if your patient has an epidural or kidney problems. Instruct your patients to notify you immediately if they notice confusion, dizziness, nausea,decreased urine output, rapid weight gain, swelling of the face, ankles, or hands, or unusual fatigue or weakness.

This medication should be strictly avoided when your patients are receiving neuraxial anesthesia or undergoing spinal puncture. In these patients, hematomas may form which can result in long-term or permanent paralysis.

There are a substantial number of drugs that adversely interact with rivaroxaban, so please do a thorough search before prescribing.

Recently, the VOYAGER PAD trial randomized 6,554 patients with symptomatic PAD undergoing lower extremity revascularization. They received 2.5mg rivaroxaban twice daily, or a placebo. They also received aspirin, cliopidogrel use per the investigator's discretion and were encouraged to use statins.

"The trial demonstrated a 15% reduction in the primary composite endpoint of acute limb ischemia, major amputation, myocardial infarction, ischemic stroke and cardiovascular death. Bleeding was increased, but the overall incidence with rivaroxaban was low. There was no significant interaction for efficacy or safety on the basis or surgical or endovascular revascularization. The surgical patients' risk for primary endpoint events was reduced by 19% with rivaroxaban," said Nicholas Govsyeyev, M.D.

ELIQUIS is the brand name of apixaban and was approved by the FDA is 2012. A novel oral anticoagulant that blocks certain clotting proteins in the blood, it is prescribed to patients with non-valvular atrial fibrillation to reduce the risk of stroke and blood clots. It is also prescribed to treat deep venous thrombosis and pulmonary embolism and is used to lower the risk of clots in patients following knee and hip replacement surgery.

Patients who take apixaban will see an increase in bruising. Like rivaroxaban, apixaban increases the risk of bleeding in the spine when your patients has had an epidural, takes NSAIDs, or has spinal surgery. Your patient should notify you immediately if they have uncontrolled bleeding, excessive bruising or experiences tingling, numbness, or muscle weakness, especially in legs and feet.

Do not prescribe apixaban if your patient has an allergic sensitivity to its ingredients, or active pathological bleeding.

Apixaban is not recommended for use with a wide variety of anticoagulents, NSAIDs, SSRIs and other medications, including defibrotide. Use extreme caution when prescribing to patients who are taking multiple medications.

COUMADIN is the brand name for warfarin. Originally developed as a rat poison, it was approved by the FDA as an anticoagulant for human use in 1954. In 1955, warfarin earned a much more favorable reputation when President Eisenhower received it after a massive heart attack.

Warfarin disrupts the work of vitamin K in the molecular events that cause blood clotting, preventing clots from forming. Blood contains clotting factors that act to form a blood clot when patient is bleeding. Vitamin K is needed for these factors to be produced. Coumadin works by blocking the production of these Vitamin-K dependent clotting factors. Warfarin is prescribed for the treatment of cardiac arrhythmias, and to treat or prevent venous thrombosis and pulmonary embolism. It is also prescribed to patients with prosthetic heart valves, and those who have experienced a heart attack.

Warfarin can cause side effects including gas, abdominal pain, or bloating, changes to or loss of sense of taste, hair loss, and feeling cold or having chills

Like other anticoagulants, warfarin can cause bruising and unusual bleeding when your patient experiences a cut or injury. Warfarin use should be continuously monitored in your patients. Your patients will need

to avoid green leafy vegetables as these counter the effects of coumadin.

Warfarin is an appropriate medication for those patients with artificial heart valves, but should not be prescribed to pregnant persons or those intending to become pregnant. Remind your patients to inform all their physicians, therapists and dentists that they are taking warfarin. Warfarin may need to be discontinued for several days before any surgeries or dental procedures.

Use caution when prescribing warfarin to patients who take: aspirin or aspirin-containing products, acetaminophen or acetaminophen-containing products, antacids or laxatives, antibiotics, fluconazole, cold or allergy medicines, Ibuprofen, naproxen sodium and amiodarone.

TRENTAL is the brand name for pentoxifylline and was approved by the FDA in 1999. Pentoxifylline is used to improve blood flow in patients with circulation problems by making the red blood cellss pliable and able to squeeze through diseased vessels. It may help reduce the pain of aching, cramping, and tiredness, especially in the hands and feet. Pentoxifylline "thins the blood" by decreasing its viscosity, allowing blood to flow more easily, especially in the small blood vessels of the hands and feet. Pentoxifylline is used to treat patients with leg ulcers, strokes and the pain of diabetic neuropathy. It can also help relieve sickle cell disease, high-altitude sickness and eye and ear disorders.

Your patient should contact you immediately if they experience chest pain or a rapid heartbeat. They should also notify you if they have an upset stomach, vomiting, gas, dizziness or headache. Surgeons, including dentists should be alerted that a patient is taking pentoxifylline.

Patients who have had cerebral or retinal hemorrhage should not take pentoxifylline. If your patient has had a reaction to ingredients in pentoxifylline or to methylxanthines, it should not be prescribed. Nursing mothers should not take pentoxifylline.

Do not prescribe pentoxifylline to patients taking ketorolac or riociguat.

With so many medications to choose from and considering each patient's unique health events, history and current status, it can be difficult to make the highest and best choice.

Consult your vascular surgeon whenever you have a question about prescribing medications for your patients with vascular disease. Preventing and treating vascular disease today means your patients live a better, more active lives in more robust health than ever before.

About the author, Dr. Eugene Tanquilut

Dr. Eugene Tanquilut is board-certified in both vascular and endovascular surgery. Award-winning and recognized as a Vitals Top 10 Doctor and a Patient's Choice Doctor, he earned Vascular and Endovascular Fellowships at Cleveland Clinic.

Dr. Tanquilut is the President of Vascular Specialists in Tinley Park and has participated in numerous research studies, published papers and is a widely-requested speaker.

YOU'RE INVITED!

LEA-UP

(Lower Extremity Amputation & Ulcer Prevention Program)

A Collaborative, Multi-Disciplined Approach to Limb Salvage

WEDNESDAY, NOVEMBER 10, 2021

6:30PM-9:00PM

GIBSON'S BAR & STEAKHOUSE

2105 SPRING ROAD

OAK BROOK, ILLINOIS 60523

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of CME Consultants and Vascular Education Foundation.

CME Consultants is accredited by the ACCME to provide continuing medical education for physicians. CME Consultants designates this live activity for a maximum of 1.0 AMA PRA Category 1 Credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Join us at our November meeting and dinner LEA-UP event. LEA-UP meetings offer certified presentations on a particular topic from medical experts in that field.

NOVEMBER 10, 2021 LEA-UP

Topic:

Pharmacotherapy

Speaker:

Paul Crisostomo, MD

Moderator:

Eugene Tanquilut, MD

1.0 *AMA PRA Category 1 Credit™* available.

RSVP by Monday, November 1st. Please scan the QR code below to RSVP.

Space is limited

PAUL R. CRISOSTOMO, MD

Associate Professor, Department of Surgery, Stritch School of Medicine, Loyola University Chicago; Medical Director, Gottlieb Wound Healing and Hyperbaric Medicine Center, Loyola Medicine, Chicago, Illinois; Staff vascular Surgeon at Loyola University Medical Center, Loyola University Gottlieb Memorial Hospital, Hines Veterans Administration Hospital, and Loyola University MacNeal Hospital.

DESIRED OUTCOMES – ***At the conclusion of this activity, the learner will be able to:***

1. **Counsel patients on the most safe and effective treatment options available to them**
2. **Assess the cultural and/or clinical factors which may impact selection and/or dosing of medication**
3. **Prescribe the most appropriate anticoagulant or antiplatelet for their patients, which can lead to improvement in the patient's overall health and safety**
4. **Counsel patients about their medication regimen, addressing any cultural or linguistic factors which may impede effective communication, so that patients understand the importance of adhering to the regimen given**
5. **Perform accurate documentation in order to avoid medication errors**

The presentational method for this activity will be Case Presentation with Learner Participation, Small Group Discussion/Roundtable, and Q&A. This activity is geared to meet the educational requirements of Primary Care Physicians, but open to all specialties. Also open to Nurse Practitioners, Nurses, and other clinicians. This activity will encompass the following desirable physician attributes: Patient Care & Procedural Skills, Medical Knowledge, Interpersonal & Communication Skills, Practice-Based Learning & Improvement, and Systems-Based Practice.

THANK YOU to our August LEA-UP Sponsor!

BiOnic ...Step Ahead

IT'S TIME TO CLEAN OUT YOUR CLOSETS!

VASCULAR EDUCATION FOUNDATION IS HOSTING A CLOTHING DRIVE

November 7th – December 10th

Holiday Clothing Fundraiser Drive

The Holiday Drive is running from

November 7th – December 10th

Drop off items at Vascular Specialists- 8505 183rd Street Suite A Tinley Pak, IL 60487

Please place items in large trash bags and bring to Vascular Specialists.

Thank you for your support! This fundraiser helps us provide free screenings and educational events for the Chicago Southland community and medical providers.

Scan Here for Google Maps!

ITEMS WE CAN ACCEPT

CLOTHING	ACCESSORIES- HATS, SCARVES, BELTS, WALLETS, JEWELERY, TIES, SOCKS, SMALL HANDBAGS, BACKPACKS
SHOES	
BEDDING	
TOWELS	

WE WILL NOT ACCEPT ANY LARGE ITEMS SUCH AS: TVS, COUCHES, CHAIRS, BEDS, LARGE KITCHEN ITEMS (FRIDGE, STOVE, ETC)

ANY QUESTIONS PLEASE CONTACT vascular.edu.foundation@gmail.com or call 815-824-4406.

FUNDrive savers

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