



RADIENZA

A quarterly Pharmacy Practice update for all health care professionals

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Can EECP transform the cardiac care for poor?

Enhanced External Counter Pulsation (EECP) is performed as a non-invasive treatment to lower the number and intensity of angina episodes. Treatment is administered through three pairs of external inflatable cuffs that are applied around the lower legs, upper legs and buttocks. These

cuffs continuously inflate and deflate between the resting period of the heartbeat and increase blood returned to the heart. The basic principle of EECP treatment involves increasing the amount of blood returning to the heart, which helps supply more oxygen to its starved areas. With more oxygen available, the heart can function much more efficiently and therefore reduce chest pain.

The treatment schedule includes 7 weeks of continuous treatments, which require daily visits for one hour, 5 days a week. EECP has been approved by the United States Food and Drug Administration (FDA) for management of refractory angina (Class IIb). The multicenter study-EECP (MUST-EECP) was the landmark prospective, blinded, multicenter study lead to the approval process .

According to Vasomedical protocol, exclusion criteria for EECP include arrhythmias that interfere with machine triggering, bleeding diathesis, active thrombophlebitis, severe lower extremity vaso-occlusive disease, presence of a documented aortic aneurysm requiring surgical repair, and pregnancy. Precautions include decompensated heart failure, aortic insufficiency, severe mitral or aortic stenosis, uncontrolled hypertension, and heart rates greater than 120 beats per minute. Hypertension and elevated heart rates should be controlled before starting treatment, and heart failure patients should be stable before starting treatment.

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New Drug

Ceftolozane with tazobactam approved for the new indication to treat Hospital acquired bacterial pneumonia and ventilator associated bacterial pneumonia (HABP/VABP). It was previously approved for treating complicated intra abdominal infections.

New Drug

The FDA has approved the drug siponimod, a selective sphingosine-1-phosphate receptor modulator , to treat adults with relapsing forms of multiple sclerosis (MS) to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease.

Use some antibiotics more and others less to stem resistance, says WHO

The World Health Organization has urged governments around the world to implement a tool to reduce the spread of antimicrobial resistance, as part of a new global campaign.

The AWaRe tool classifies antibiotics into three groups: Access, Watch, and Reserve. It indicates which antibiotics to use for common or serious infections, which ones should be used sparingly or preserved, and which should be used only as a last resort.

WHO Antibiotic Categorization

- Provides recommendations for 21 common infective diseases
- Differentiates in three groups to minimize resistance
- Identifies antibiotics that are priorities for monitoring and use surveillance

Access Group

- First or second choice antibiotics
- Offer the best therapeutic value, while minimizing the potential for resistance

Watch Group

- First or second choice antibiotics
- Only indicated for specific, limited number of infective syndromes
- More prone to be a target of antibiotic resistance and thus prioritized as targets of stewardship programs and monitoring

Reserve Group

- Not all antibiotics were included in the AWaRe framework, some of the antibiotics in this group may be included in future editions of the AWaRe classification
- Some high-priority bacterial infections (such as tuberculosis) and parasitic infections (such as malaria) are addressed by other WHO guidelines

For more information <https://adoptaware.org/>

Does Medicine Really Expire?

Ever since 1979, the U.S. Food and Drug Administration (FDA) has required that pharmaceutical companies put expiration dates on prescription and over-the-counter medicines. That doesn't mean your bottle of ibuprofen will go bad in the same way as, say, an expired carton of milk. The date that you see printed on a pill bottle is the date until which the medicine's manufacturer will guarantee the drug's safety and full potency. How long a drug actually remains safe and effective, however, is often a matter of debate. A study in 2017 showing that EpiPens — the expensive auto-injectors used to treat life-threatening allergic reactions — retained 84 percent of their potency more than four years past their expiration dates, suggesting that in an emergency, an expired EpiPen would be better than nothing. Another study which was published in the journal JAMA Internal Medicine in 2012 shows that some of the drugs, at least 40 years past their manufacture date, still retained full potency

What's new in the field of medicine

Jerusalem Syndrome

Tourists visiting the city of Jerusalem are experiencing a strange condition that psychiatrists have dubbed 'Jerusalem syndrome.' The idea is that the city somehow triggers a reaction where the tourists begin thinking of themselves as historical, religious characters. But health professionals don't view these occurrences as true spiritual enlightenment, with some chalking it up to mental delusions. The term was first used by psychiatrist Heinz Herman in the early 1900s to describe cases occurring even around that time

Multi-Organ Lab-on-a-Chip for Cancer Drug Testing

Researchers at Hesperos, Inc., a biotech firm based in Florida, have collaborated with Roche and the University of Central Florida to develop a multi-organ lab-on-a-chip system for drug testing. The device includes human organ-derived tissue constructs that allow for the efficacy and side-effects of anti-cancer drugs in various organs to be tested in a way that does not involve laboratory animals. The technique is another step for lab-on-a-chip devices in making pre-clinical testing easier, less expensive, and more humane. Roche was involved in the research behind this latest device, which contains multiple human organ-derived tissue constructs grown on microelectromechanical systems (MEMS), and circulating serum-free medium. The device allows researchers to test the tissue response to anti-cancer drugs, either alone or in combination, and assess both efficacy and safety at the same time.

New weapon in the fight against drug resistant bacteria's

Scorpion venom compounds can kill dangerous bacteria

Scientists from Stanford University, in California, and the National Autonomous University of Mexico, in Mexico City, have recently made a promising discovery: Two compounds from the venom of a scorpion native to Eastern Mexico, *Diplocentrus melici*, can fight off difficult bacteria without causing harm to healthy tissue.

The team conducted their research in mice, as well as in tissue samples, to test the compounds' effectiveness and safety. The study's findings now appear in *PNAS* (Proceedings of the National Academy of Sciences of the United States of America). After conducting several sensitive tests, the researchers deemed that two chemical compounds of 1,4-benzoquinone — which they had been able to synthesize from a tiny quantity of scorpion venom — were responsible for this change. Each of these compounds turned a different color, one red and the other blue, when coming into contact with the air. The team at Salvador Zubirán found that red 1,4-benzoquinone effectively destroyed *Staphylococcus aureus*, which is highly infectious, while blue 1,4-benzoquinone was able to kill different strains of *Mycobacterium tuberculosis*, which are responsible for tuberculosis. This included *M. tuberculosis* strains that had developed resistance to multiple antibiotics.

The fact that the two newly identified compounds are highly effective against deadly bacteria and seemingly safe to administer makes them ideal candidates for new drugs and therapies. By volume, scorpion venom is one of the most precious materials in the world. It would cost \$39 million to produce a gallon of it. So it's important to identify what the critical ingredients are and be able to synthesize them. Scientists made a breakthrough and learned how to synthesize the two benzoquinones from the venom of *D. melici* that researchers will now be able to look for ways of using these compounds for healing purposes.

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Clinical Pearls-

- Carbidopa/ levodopa should be taken on an empty stomach to maximize absorption and bioavailability. If nausea develops, it is usually mild, transient, and countered by eating a few soda crackers (S altine crackers).
- NSAIDs should be avoided after bariatric surgery as they increase the risk of developing ulcers
 - Ibuprofen is more effective at achieving temperature normalization than acetaminophen.

Got an Antibiotic Prescription From Your Dentist? Chances Are, It Might Be Unnecessary

More than three-quarters of antibiotic prescriptions written by dentists before dental procedures are unnecessary and might do more harm than good, a new U.S. study found. Dentists write one of every 10 antibiotic prescriptions in the United States, and despite national declines, antibiotic prescribing by dentists has held steady over the years, researchers wrote. Dentists need to be included in the public health conversation regarding appropriate antibiotic use and antimicrobial resistance, lead author Katie Suda of the University of Illinois, Chicago, told Reuters Health by phone.

Antibiotics before dental procedures are recommended for a small subset of patients with certain medical conditions, to prevent endocarditis that might arise from the release of oral bacteria into the bloodstream during the procedures. To see if antibiotics are being prescribed for dental patients according to established guidelines, Suda and her team used an insurance database to analyze prescriptions written during 168,000 dental visits from 2011 to 2015. They found that 80.9% of prescriptions for antibiotics to be taken before procedures were unnecessary. Among the 91,438 patients in the study, only 20.9% had a cardiac condition that put them at the highest risk of developing endocarditis and warranted an antibiotic prescription, they report in JAMA Network Open, May 31. Patients with artificial joint implants had more than double the odds of receiving unnecessary antibiotic prescriptions compared with patients who did not have the implants. This is despite the fact that the American Academy of Orthopaedic Surgeons and the American Dental Association now say people with prosthetic joint devices do not need antibiotics before dental procedures. In particular, the antibiotic clindamycin was highly likely to be unnecessarily prescribed.

Clindamycin has been linked with Clostridium difficile. A single dose of clindamycin carries the same risk of C. diff infection as a prolonged course of the antibiotic, the researchers wrote, making it all the more alarming that clindamycin was among the overused antibiotics.

Misuse and overuse of antibiotics encourages bacteria to evolve and find ways to resist the medicines. The World Health Organization has called antibiotic resistance a global health emergency.

SOURCE: <https://bit.ly/2KdK109> and <http://bit.ly/2R91tEt> JAMA NetwOpen 2019