RetroDUR Newsletter

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INSIDE THIS ISSUE:

AMERICAN HEART MONTH Focus on Spontaneous Coronary Artery Dissection (SCAD)

Heart disease is the leading cause of death for both men and women in the United States.[1] In 1963, President Lyndon B. Johnson declared the month of February to American Heart Month to spread awareness of the importance of heart health. February 7, 2020 is National Wear Red Day®. On this day, the American Heart Association's (AHA) national movement, *Go Red for Women®*, is also supported. Their goals are to end heart disease and stroke in women which causes 1 in 3 deaths among women each year – more than all cancers combined.[2] Spontaneous coronary artery dissection (SCAD) is the number one cause of heart attacks among women who are pregnant or have recently given birth and women under the age of 50.[3] The AHA released a scientific statement on the current state of the science of SCAD in May 2018.

According to their research, SCAD most commonly occurs in younger women (45 to 53 years) with few or no traditional cardiovascular risk factors. SCAD is defined as a spontaneous tearing in the coronary artery wall that is not associated with atherosclerosis or trauma.[4] First discovered in 1931, SCAD was initially described as a rare and almost universally fatal cause of acute coronary syndrome (ACS), myocardial infarction (MI), and sudden cardiac death in peripartum women, but recent reports have refuted these misconceptions. Advances in understanding of the epidemiology, availability of intravascular imaging, and heightened awareness among patients and providers suggests SCAD is far more common than previously thought, especially in young women. Despite these new advances, SCAD continues to be misdiagnosed, underdiagnosed, and managed as atherosclerotic AACS, which may harm patients with SCAD.

Table 1 lists the top five conditions and factors that the AHA have found to be associated with developing SCAD. Patients who survive and present for evaluation almost universally experience ACS and increased levels of cardiac enzymes. Presenting symptoms are consistent with atherosclerotic ACS (chest pain, pain radiating to arm, nausea, vomiting, STEMI or NSTEMI). It's imperative to accurately diagnosis SCAD in the early stages of ACS presentation because management differs from those with atherosclerotic forms of coronary artery disease. Once SCAD is suspected, coronary angiography should be performed as early as feasible. Angiography is limited however by the fact that it does not specifically image the arterial wall.

Table 1: Conditions and Factors Associated with SCAD[4]

Associated Condition or Factor	Reported Prevalence in Cohort Studies, %
Fibromuscular dysplasia	25-86
Pregnancy	2-8
Multiparity (≥ 4 births)	8.9-10
Inherited arteriopathy and connective tissue disorder (Marfan syndrome, Loeys-Dietz syndrome, vascular Ehlers-Danlos syndrome, polycystic kidney disease)	1.2-3.0
Exogenous hormones	10.7-12.6
Precipitating Factors	>50% patients recall a precipitating factor
Intense exercise, intense valsalva, retching, vomiting, bowel movement, coughing, lifting heavy objects, intense emotional stress, labor and delivery, recreational drugs	

Initial Diagnosis & Management

The American College of Cardiology/American Heart Association and the European Society of Cardiology guidelines for the management of ACS advocate an early invasive strategy with revascularization of culprit lesions over conservative therapy alone.[5, 6] This stent-based approach reduces the risk of recurrent occlusion at the lesion site and associated adverse events in atherosclerotic MI, but there have been no randomized studies or subgroup analyses of treatment outcomes or comparisons between acute revascularization strategies for ACS caused by SCAD.

According to the AHA, conservative therapy by angiographic "healing" of SCAD lesions is generally the preferred strategy in patients with SCAD who are clinically stable and without objective evidence of ongoing ischemia and has generally been associated with favorable outcomes.[7,8] Conservative therapy may not be appropriate in high risk patients with ongoing ischemia, left main artery dissection, or hemodynamic instability. Observational studies have shown consistently that PCI for the treatment of SCAD is associated with an increased risk of complications and suboptimal outcomes.[4]

Medication Management

The ultimate goals of short- and long-term medical therapy of SCAD are to alleviate symptoms, to improve short- and long-term outcomes, and to prevent recurrent SCAD. Unfortunately, due to the relatively recent recognition of SCAD and lack of randomized controlled trials to support an evidence-based approach, there is a lack of guidance for clinicians. The following is a summary of the AHA's working group findings.

Anticoagulation and Antiplatelet Therapy[4]

Currently, information on anticoagulation in SCAD patients is lacking. There are theoretical concerns about the use of anticoagulation use in the setting of acute SCAD presentation related to accentuating the risk of bleeding into the intramural hematoma or extension of dissection. Dual antiplatelet therapy is not recommended. Aspirin for at least one year and potentially indefinitely thereafter appears to be appropriate. Patients with SCAD who are undergoing coronary revascularization should receive the standard guideline based antiplatelet therapy after PCI.

β-Adrenergic Blockers[4]

β-Blockers should be considered in patients with SCAD who have LV dysfunction or arrhythmias and for management of hypertension.

Angiotensin-Converting Enzyme Inhibitors (ACEi) & Angiotensin Receptor Blockers (ARBs)[4]

After SCAD, ACEi or ARBs should be used when MI is complicated by LV systolic dysfunction. These drugs are also a treatment option for concomitant hypertension. Female patients of reproductive age must be warned of the teratogenicity of these medications.

Statins[4]

Based on retrospective cohorts, statin therapy is not recommended routinely after SCAD but is reserved for patients meeting guideline-based indications for primary prevention of atherosclerosis and for the management of patients with established concomitant atherosclerotic disease or diabetes mellitus.

Antianginal Therapy[4]

The predominant role of antianginal therapies is for post-SCAD chest pain syndromes. Chest discomfort is common in outpatients after SCAD, and for patients who are not candidates for revascularization or who have evidence suggesting coronary vasospasm or coronary microvascular dysfunction, relief of ischemia and symptoms may be achieved with nitrates, calcium channel blockers, or ranolazine.

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Gabapentinoids and the Risk of Respiratory Depression

Gabapentinoids Overview

- Gabapentinoids, which include pregabalin and gabapentin, are a group of medications that have been a mainstay of pharmacological management of neuropathic pain for over a decade.[1] Other uses include focal seizures, fibromyalgia and postherpetic neuralgia.
- The precise mechanism is not well understood but the effects in pain are thought to be due to the inhibition of voltage-gated Ca^{2+} channels by binding to its of α2δ-1 subunit.[2,3]

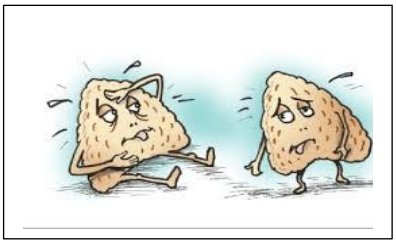
FDA Drug Safety Communication[4]

- The U.S. Food and Drug Administration (FDA) released a safety warning in December 2019 about serious breathing problems with gabapentin (Neurontin, Gralise, Horizant) and pregabalin (Lyrica, Lyrica CR) in patients who have risk factors. Risk factors include concurrent use of central nervous system (CNS) depressants, especially opioid pain medications, and respiratory conditions such as chronic obstructive pulmonary disease (COPD). The elderly also has an increased risk.
- The FDA is requiring drug manufacturers to add the risk of respiratory depression to the prescribing information of gabapentinoids. Additionally, drug manufacturers must conduct clinical trials regarding the abuse potential of these products, particularly in combination with opioids. The abuse and misuse of gabapentinoids and opioids concurrently is on the rise which may increase the risk of respiratory depression.

For Health Care Professionals

- When co-prescribing gabapentinoids with other CNS depressants like an opioid, or in patients with lung problems, initiate the gabapentinoid at the lowest dose.
- When prescribing to patients with renal impairment, adjust the dose of both gabapentin and pregabalin as both are excreted by the kidneys.

Symptoms to monitor for include:



  - Confusion or disorientation
  - Unusual dizziness or lightheadedness
  - Extreme sleepiness or lethargy
  - Slowed, shallow, or difficult breathing
  - Unresponsiveness
  - Bluish-colored or tined skin, especially on the lips, fingers and toes

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Prescribers Suggestions to Avoid e-Prescribing Errors for Medicaid Patients

As we start 2020, we continue to see the expanded use of technology in healthcare. There have been significant efforts for integration across the spectrum of healthcare applications. Many health-systems have hired integration officers to help pursue an integrated enterprise wide strategy. Major efforts will be exerted in expanding use of artificial intelligence, better system communication, and sharing of information to areas needed across the healthcare enterprise. One area particularly applicable to Medicaid patients and the DUR program will be continued efforts by payer and regulatory groups to increase the percentage of prescriptions completed via e-prescribing.

Goals of e-Prescribing are to reduce the abandonment of prescriptions, improve communications, reduce possible transcription errors, decrease prescription fraud and diversion, and to improve patient adherence. Financial incentives and penalties and increased regulations have and will continue to be adopted to encourage e-prescribing utilization and drive the conversion to this technology. So, ready or not, we are moving to a higher percentage of e-prescriptions.

As we have discovered in adoption of other healthcare technologies over the years, by using technology to fix identified problems in the healthcare system, we often have contributed to unforeseen or new issues. With e-prescribing, this is no exception. With its adoption, we have seen the emergence of new types or potentially problematic errors created.

The table below identifies some of the areas that have been identified by industry leaders such as ISMP, the FDA, health IT experts, and others and suggestions to prevent these identified areas of concern from becoming an actual medication error or problem in your practice.

Best practice with  e-Prescribing	Comments 
Try to avoid interruptions during e-prescribing	• Instruct staff not to interrupt when you are e-prescribing • Give the patient education sheet to read while you are e-prescribing • Read aloud your e-prescription to help verify data

Ensure the right patient and right drug	• Ensure the Right Patient
	  ○ Verify DOB and spelling of name
	  ○ Limit the number of open charts you look at once
	  ○ Include indication
	• Ensure the Right Drug
	  ○ Pay close attention if using autocomplete function
	  ○ Watch for clicking wrong drug or items that are truncated with key information left off the screen;
	  ○ Watch for IR or ER or salt forms of drugs
	  ○ If you select free text, alerts may not work

Be careful with look-alike-sound-alike names	• Consider using tall man lettering in your EHR if not currently using
	• Flag high risk drugs if possible
	• Examples:
	  ○ glyBURIDE vs glipiZIDE
	  ○ predniSONE vs predniSOLONE
	  ○ chlordiazePOXIDE vs chlorproMAZINE
	• Postable PDF chart for your office available at: https://www.ismp.org/sites/default/files/attachments/2017-11/tallmanletters.pdf

Narrate as you e-prescribe	• Helps to avoid interruptions • Helps ensure correct drug, correct dose, correct pharmacy, and that the order was transmitted successfully

Watch SIG fields and notes fields but use them if necessary	• Do not split drug directions between the "sig" and the "notes" fields. Use the free text "notes" field for information that cannot be fit in its entirety (e.g. methylprednisolone dose pack instructions). • If replacing a prescription with a new one, note this in the notes field – "Drug A replaces Drug B". • Use the notes field ONLY for information that can't fit in the other fields. • Ensure your notes field is not only for internal communication. • Old notes should be cleared out and notes may not carry over in all systems to refills.
Watch for possible duplicate prescriptions	• Can be ordered by both brand and generic name • Desired strength not commercially available – e.g. using 2 mg + 1 mg prescription to get 3 mg dose • Taking on different days of the week (e.g. warfarin) • Respond to refill requests in a timely manner to prevent duplicates from being generated • Advise pharmacies of your preference of how refill requests should be sent to your office (fax, phone, EHR) • Transmit at the end of the patient encounter in case new dose is needed • Check notes field on seemingly duplicate prescriptions • Avoid sending prescription in multiple forms (paper, fax, e-Rx)
For compounded medications, consider fax or hard copy to patient	• Sometimes with compounded medications, the e-prescribing does have its limitations.
Proofread every e-prescription before transmitting	• Double-check patient, drug, dose, quantity, instructions, notes, day's supply, and pharmacy selected.
Be careful with default values	• Don't assume that default values such as dose, quantities, or frequencies are preferred or accurate.
Provide training on your EHR system when available	• Take advantage of training webinars and sessions to ensure staff using your EHR are trained and aware of features and tools in the system. • Often vendors offer update training on new or changing features
Share e-prescribing problems to prevent future problems	• Share with your entire team identified errors so your team can form a system approach to prevent them • Report problems or suggestions for improvement you identify to your IT department or to the software vendors.

Also, the following are resources that can be applied to your practice to help improve medication safety and efficiencies:

Toolkits for implementation of e-prescribing for U.S. prescribers and pharmacies are available at https://healthit.ahrq.gov/health-it-tools-and-resources/implementation-toolsets-e-prescribing .

Report errors or potential errors to ISMP (Institute for Safe Medication Practices) at https://www.ismp.org/report-medication-error

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We are pleased to announce that the **Marshall School of Pharmacy DUR Coalition** is the newest vendor for the RetroDUR Program. Pharmacists and clients are welcome to call with any questions.

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