PHARMACOLOGIC STRESS MYOCARDIAL PERFUSION IMAGING IN

A Woman With Atypical Chest and Right Arm Pain

Note: Photo does not depict patient in this case study.
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INDICATION
Lexiscan® (regadenoson) injection is a pharmacologic stress agent indicated for radionuclide myocardial perfusion imaging (MPI) in patients unable to undergo adequate exercise stress.

IMPORTANT SAFETY INFORMATION

CONTRAINDICATIONS
Do not administer Lexiscan to patients with second- or third-degree AV block or sinus node dysfunction unless these patients have a functioning artificial pacemaker.

WARNINGS AND PRECAUTIONS

Myocardial Ischemia
Fatal and nonfatal myocardial infarction, ventricular arrhythmias, and cardiac arrest have occurred following Lexiscan injection. Avoid use in patients with symptoms or signs of acute myocardial ischemia, for example unstable angina or cardiovascular instability; these patients may be at greater risk of serious cardiovascular reactions to Lexiscan. Cardiac resuscitation equipment and trained staff should be available before administering Lexiscan. If serious reactions to Lexiscan occur, consider the use of aminophylline, an adenosine antagonist, to shorten the duration of increased coronary blood flow induced by Lexiscan.

Sinoatrial and Atrioventricular Nodal Block
Adenosine receptor agonists, including Lexiscan, can depress the SA and AV nodes and may cause first-, second-, or third-degree AV block, or sinus bradycardia requiring intervention. In postmarketing experience, heart block (including third degree), and asystole within minutes of Lexiscan administration have occurred.

Hypersensitivity, Including Anaphylaxis
Anaphylaxis, angioedema, cardiac or respiratory arrest, respiratory distress, decreased oxygen saturation, hypotension, throat tightness, urticaria and rashes have occurred. In clinical trials, hypersensitivity reactions were reported in fewer than 1 percent of patients.

Hypotension
Adenosine receptor agonists, including Lexiscan, induce arterial vasodilation and hypotension. The risk of serious hypotension may be higher in patients with autonomic dysfunction, hypovolemia, left main coronary artery stenosis, stenotic valvular heart disease, pericarditis or pericardial effusions, or stenotic carotid artery disease with cerebrovascular insufficiency. In postmarketing experience, transient ischemic attacks, seizures and syncope have been observed.

Hypertension
Adenosine receptor agonists, including Lexiscan, may result in clinically significant increases in blood pressure in some patients. In postmarketing experience, cases of potentially clinically significant hypertension have been reported, particularly in patients with underlying hypertension and when low-level exercise was included in the MPI.

Bronchoconstriction
Adenosine receptor agonists, including Lexiscan, may cause dyspnea, bronchoconstriction and respiratory compromise. Appropriate bronchodilator therapy and resuscitative measures should be available prior to Lexiscan administration.

ADVERSE REACTIONS
The most common adverse reactions (≥5%) to Lexiscan are dyspnea, headache, flushing, chest discomfort, angina pectoris or ST-segment depression, dizziness, chest pain, nausea, abdominal discomfort, dysgeusia, and feeling hot. Most adverse reactions began soon after dosing, and generally resolved within approximately 15 minutes, except for headache, which resolved in most patients within 30 minutes. Aminophylline was used as a reversal agent in 3% of patients.

In postmarketing experience, the following adverse reactions have occurred: myocardial infarction, cardiac arrest, ventricular arrhythmias, supraventricular tachyarrhythmias including atrial fibrillation or flutter, heart block, asystole, marked hypertension, hypotension, seizure, syncope, QTc prolongation, tremor, abdominal pain in association with nausea, vomiting, or myalgias, diarrhea, fecal incontinence, wheezing and musculoskeletal pain.

PLEASE SEE FULL PRESCRIBING INFORMATION AT WWW.LEXISCAN.COM.
PATIENT PRESENTATION
AND HISTORY
A 55-year-old woman presented with dizziness and atypical chest and right arm pain. She had no history of coronary heart disease but did have several cardiac risk factors, including diabetes mellitus, dyslipidemia, and obesity (body mass index [BMI]=38.7 kg/m²). The patient was admitted to the hospital for observation. At admission, the patient was taking aspirin, metformin, and pravastatin, and her troponin levels were normal (<0.01 ng/mL). Her resting electrocardiogram (ECG) showed minor nonspecific inferior T-wave abnormalities.
LEXISCAN SPECT MPI

The patient was unable to exercise due to deconditioning and poor motivation. She was referred for pharmacologic stress single-photon emission computed tomography (SPECT) MPI, and Lexiscan was chosen as the pharmacologic stress agent. Her resting heart rate (HR) was 85 bpm, and her resting blood pressure (BP) was 126/47 mm Hg. After Lexiscan administration, her maximum HR was 101 bpm, and BP was 128/73 mm Hg. The patient experienced dyspnea and chest discomfort, and her ECG showed that the mild inferior T-wave abnormalities seen at rest became slightly worse during stress.

The rotating planar images showed substantial breast attenuation, as would be expected for a woman with a BMI of 38.7 kg/m² (Figure 1).

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SPECT images were acquired with and without attenuation correction (AC). The non-AC SPECT images showed large, predominantly reversible anterior, anteroseptal, anterolateral, and apical defects (Figure 2A). The breast attenuation noted on the planar images appeared only slightly different in the AC and non-AC stress images, however (Figure 2B).

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Left ventricular (LV) wall motion was normal at rest but showed anterior and apical hypokinesis during stress, a pattern that is diagnostic of severe ischemia in the left anterior descending coronary artery (LAD) region (Figure 3). LV ejection fraction (LVEF) changed from >75% at rest to 62% poststress. Stress-induced regional wall motion abnormalities were consistent with ischemia-induced myocardial stunning.

**DISCUSSION**

SPECT MPI with Lexiscan was able to detect severe perfusion defects in a woman who initially presented with atypical symptoms but who had several cardiac risk factors and warranted further evaluation. Her Lexiscan SPECT MPI results prompted referral to the cath lab, which confirmed the presence of severe coronary artery disease and the need for revascularization.

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