A Shocking Contrast: Anaphylaxis Following Lumason Injection

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Lumason (sulfur hexafluoride lipid-type A microspheres) is a contrast agent used in echocardiography to enhance cardiac imaging. It is FDA-approved and safe with rare anaphylactic reactions noted emphasizing the importance of clinical awareness and preparedness. A 65-year-old male with a history of hypertension, hyperlipidemia, type 2 diabetes, heart failure, obstructive sleep apnea, and atrial fibrillation presented with chest pain. He was diagnosed with atrial fibrillation with rapid ventricular response. Troponins were elevated from demand ischemia. Diltiazem was administered with the achievement of rate control, and an echocardiogram was performed after stabilization. Four milliliters of Lumason were used for imaging enhancement, after which the patient developed hypotension, chest pain, diaphoresis, nausea, and dizziness, but no EKG changes. Fluid resuscitation, diphenhydramine, and norepinephrine led to rapid symptom relief. His oxygen saturation remained stable, and BiPAP was used as needed. Troponins remained stable, but the patient was continued on a heparin drip. An allergic reaction to Lumason was determined to be the cause of his hypotension.In this case, the patient developed signs consistent with anaphylaxis shortly after Lumason administration, including dyspnea, hypotension, and nausea. Our patient had no known allergies or anaphylactic reactions. The temporal relationship between contrast injection and symptom onset, along with the absence of other potential triggers, strongly suggests Lumason as the causative agent. Although the exact mechanism of hypersensitivity remains unclear, it is thought to involve an IgE-mediated immune response, potentially exacerbated by prior exposure or sensitivities to similar contrast agents. Lumason contrast microspheres consist of a phospholipid shell with sulfur hexachloride gas with polyethylene glycol (PEG) serving as an excipient. Several studies have identified PEG-4000, to be the likely cause of the reaction. PEG, a macrogol is known to trigger hypersensitivity responses in certain patients, the mechanism of hypersensitivity to macrogols is poorly understood. Incidence rates of severe reactions range from 0.007% to 0.0086% with a handful of documented anaphylaxis. In 2021 FDA issued a warning against the use of Lumason in patients with known allergies to PEG. Prompt recognition and treatment with pressors and supportive care are critical in management. Given the rarity of such reactions, clinicians should remain vigilant for signs of allergic response.

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