

# Ask the Clinical Instructor

**A Q&A column for those new to the cath lab**

**Questions are answered by:  
Todd Ginapp, EMT-P, RCIS, FSICP**



Todd is the Cardiology Manager for Memorial Hermann Southeast in Houston, Texas. He also teaches an online RCIS Review course for Spokane Community College, in Spokane, Washington, and regularly presents with RCIS Review Courses.

**“We have some doctors that pay attention to our reports of allergies to shrimp and shellfish, and some who ignore it. Isn't this a standard of care?”**  
— RCIS Review Course Participant, Anchorage, Alaska



I will answer your question by first telling you that I can't answer your question. My experience with this exact question has shown me that there is disagreement between physicians, disagreement in textbooks and disagreement with pharmacists on the validity of linking shrimp/shellfish and iodinated contrast media (ICM). Some physicians have told me that it is a “gold standard” while other physicians have said it is an “old wives’ tale.”

I will present you with information, and you will see for yourself that there is not one specific answer. However, you should be able to note that in this age of evidenced-based medicine, the link of shrimp/shellfish to ICM is certainly not evidence-based, which may lead one to challenge whether this can be considered a standard of care.

The reactions to ICM can occur on first exposure to contrast, instead of the normal allergy process where one is exposed to a substance first, and then becomes ‘allergic’ to it on future contact. Patients with a known allergy to contrast medium (identified by previous procedures) require oral or intravenous prophylaxis before the procedure (to be discussed later). In patients with a history of previous anaphylaxis to iodinated contrast media, the risk of a repeat reaction is about 15%.<sup>1</sup> It is also interesting to note that patients with allergies, including hay fever, are 1.5-3 times more likely to have an adverse reaction to ICM than other people. While

some facilities have a standard practice of asking about shrimp/shellfish allergies, no consistent data warrant the use of any unique precautions in patients who have seafood or shellfish allergies.<sup>2</sup>

This topic certainly has brought out ambiguity and disagreement in the literature. Braunwald et al states, “A history of shellfish allergy does not predispose the patient for contrast medium reactions”<sup>3</sup>; however, they fail to elaborate on their statement. Baim states, “Risk of such reactions is increased in patients with other atopic disorders, allergy to penicillin, or allergy to seafood (which contains organic iodine)”<sup>4</sup>. The American Academy of Family Physicians states, “No substantive data support the myth that patients with seafood allergy are at higher risk of developing allergic reactions to contrast media.”<sup>5</sup>

One of the reasons for the disagreement is a limited study of the true allergy to shrimp/shellfish. When research was completed, it was determined that the allergy people have to shrimp/shellfish is really the reaction to a muscle protein in the food.<sup>6</sup> If this is taken as a scientific-based truth, then the correlation between shrimp/shellfish and ICM cannot be made, since the ICM would not have those particular muscle proteins.

Additionally, the American Academy of Allergy, Asthma and Immunology states, “...seafood may contain iodine. However, IgE antibody-

## Mail Call!

I received an email with a question about our November 2008 issue column discussing intravascular ultrasound (IVUS)/fractional flow reserve (FFR) (available online at <http://cathlabdigest.com/articles/Ask-Clinical-Instructor-A-QA-column-those-new-Cath-Lab-20>). **Victor Nicastró, RCVT/CPT of Boca Raton Community Hospital/Lynn Heart Institute**, wrote:

“In reading your article you did a fine job of explaining and justifying the use of both instruments. However, in looking over your LAD case that was sent to surgery and looking at the angios in the article, I came across a major cause of my frustration that I find with a growing number of interventionalists: the lack of intracoronary NTG, which should be used for spasm, as well as for accentuating lesions that might be borderline. In looking at your angio in the article, I would almost bet that if IC NTG were administered the need for a flow wire would have been negated. Administering IC NTG accomplishes two things: 1) dilating the normal vessel, thereby accentuating the diseased lesion or lesions; 2) proper sizing of the vessel if there is a need for intervention.”

Victor, thanks for bringing that up. That's a good point and an important one. NTG is important to use in order to properly visualize lesions, and can often clarify a questionable lesion by dilating the “normal” vessel around it. Vessels can develop slight spasm because of contrast, catheter irritation and numerous other reasons. In the case that was presented, NTG was administered with no discernable difference post-administration. The Radi PressureWire system (Wilmington, MA) was then used.

mediated seafood allergy has never been attributed to iodine, but rather to specific proteins in fish and shellfish (e.g., parvalbumins, tropomyosin) that also do not contain iodine. Thus, fish or shellfish allergy does not indicate a sensitivity/allergy to iodine.”<sup>7</sup>

One derivative of the questioning of the patient is trying to link betadine solution reactions to the administration hazards of ICM. “Seafood allergy should not, of itself, be regarded as an absolute contraindication to the administration of IV contrast material. There is no reason to believe that iodine allergy based on skin reactions to topical antiseptics is of any specific relevance to the administration of IV contrast material.”<sup>8</sup> However, patients who demonstrate a reaction to topical betadine should have this noted and receive further evaluation by the physician.

Should a physician decide that their practice is to use this allergy history as a preventative tool, they will likely order prophylaxis medications. These will generally consist of a combination of an H<sub>1</sub> antihistamine (Benadryl), corticosteroids (Prednisone, SoluMedrol) and H<sub>2</sub> antihistamine [Tagamet (cimetidine) and Zantac (ranitidine)] agents.

No specific recommendations are being made based upon information in this article. You can see, however, how this cannot truly be considered a “standard of care” as your question asks. The use of this information should be discussed with your cardiologists to understand their opinion and their

standard of practice. Administering a prophylactic medication to a patient will not cause harm. Failure to do so, when needed, can cause harm. Utilizing a sound and evidence-based approach provides best patient care.

**Next month, we'll discuss NTG administration methods.**

**Write us at [tginapp@rcisreview.com](mailto:tginapp@rcisreview.com)**

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