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Iodinated Contrast Media: A Semantic Somersault

From

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Editor:

Having been involved with contrast media research (1) and having followed the scientific literature with regard to contrast media since the 1960s–1970s, we have observed that intravascular contrast media based on iodine are nowadays almost invariably designated as iodinated contrast media in the scientific literature (2,3). As an example, when you start to fill in “iodinated” in the search field on the PubMed home page you will get a number of choices for “iodinated contrast.” If you put “iodine” in the search field, you get only one choice: “iodine contrast.”

The simple question then arises: How is it possible to iodinate a contrast medium that is already saturated with iodine? In the context of contrast media, for example, those used with intravenous urography, computed tomography, and catheter-based angiography and interventions, the term *contrast medium* itself implies that it is based on iodine. Thus, the term *iodinated contrast medium* is tautological. It is the benzene molecule (C₆H₆) that is iodinated by substitution of three iodine atoms for three hydrogen atoms, which results in an iodine or iodine-based contrast medium including re-

placement of the remaining three hydrogen atoms with side chains containing, for example, hydroxyl groups (OH) to allow for high hydrophilicity of nonionic contrast media.

Contrast media based on gadolinium for magnetic resonance imaging are almost always correctly denoted as gadolinium contrast media. Is it just because the term *gadolinated* is difficult to articulate? Who has heard of bariuminated contrast media? So why over-elaborate with the word iodinated for contrast media? So far there exists no iodinated contrast media, and the correct term should simply be *iodine contrast media*. We would appreciate if scientific journals would set a standard for a correct language in this respect.

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Editor's Note

From

Herbert Y. Kressel, MD, Editor,
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I thank the authors for their thoughtful comments. As they note, current common terminology for iodine-based contrast media is iodinated contrast

material. I suspect this reflects the fact that the benzene molecule has been “iodinated.” Moreover, it is shorter, easier to read, and universally understood by our readers than is other suggested terminology. We do not have strict style guidelines for the description and would certainly allow the use of the terms iodine-based or iodine-containing contrast material. Similarly, the preferred terminology for the gadolinium agents is gadolinium-based contrast agents, often abbreviated as GBCAs, or gadolinium chelates. The copy editors inform me that we would accept the term *gadolinated* if used by an author, although we have not encountered such usage. We would not accept the term *gadolinium contrast medium* as it might imply the use of elemental gadolinium, which of course is toxic.

A review of the literature on the terminology used shows wide variability, and our current style approach to this allows for a good deal of flexibility, which is probably a realistic approach in view of the range of common usage patterns.

Errata

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In the author list, the third author should be listed as Eoin P. Judge.

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