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**Reply:**

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**REPLY:**

**W**e appreciate the comments submitted by Timothy Martin Ryan, Eoin C. Kavanagh, and Peter J. MacMahon regarding the use of contrast before CT-guided cervical nerve root block. The group certainly has extensive experience with the procedure. In our cases, we did not show an instance of inadvertent direct vessel contrast uptake with the contrast injection. However, we were able to visualize the extent of foraminal or epidural contrast with each injection.

The intent to decrease procedural time and radiation dose by skipping a step is valid, but eliminating the contrast step would be of little incremental value. The accepted safety profile of nonparticulate steroid formulations is growing, and we are believers. We agree that the contrast injection is unlikely to demonstrate intravascular injections. We have begun to rely on the contrast injection to document the location of the injectant. If we see poor perineural or epidural contrast, the needle can be adjusted to allow better medication deposition. Regardless, this process also allows us to document injectant localization.

Although the concern over contrast reaction is plausible, with 1-mL injections, we have yet to elicit a reaction. We concede that it is possible to generate a reaction even with such small volumes; however, we believe that the benefit outweighs the minimal risk.

Contrast can be omitted for patients with known contrast allergy, pretreatment can be used, or gadolinium-based agents (off-label) may be substituted for iodinated contrast.

Lidocaine is much more useful for determining intravascular medication injection. Untoward patient reaction signals an inadvertent vascular injection. In such cases, the procedure can be terminated or the needle can be adjusted and the injection can be repeated. This choice is dependent on the patient's reaction and recovery.

In summary, we agree with the notion that nonparticulates should be the standard of care and that imaging after contrast in CT is of limited utility in demonstrating intravascular contrast. The contrast documents injectant localization and allows us to adjust the injection to maximize localization of the medication. The potential for contrast reaction is minimal, and we believe that another benefit of contrast injection is to document injectant flow. Therefore, we are not yet ready to abandon contrast injections for small incremental reductions in potential contrast reaction, radiation exposure, or procedure time.

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