

LETTERS TO THE EDITOR

PREVENTING ERRORS IN RADIONUCLIDE INJECTIONS

To the Editor: With the increasing frequency of indium-111-white blood cell (WBC) imaging procedures, I have read and heard about patients who were accidentally injected with another patient's radiolabeled cells. In my department, we average about six indium-WBC studies per month. To prevent "mistakes," we have instituted the following simple policy, which is adhered to strictly: the technologist that draws the blood for cell labeling is the same technologist that reinjects the cells after they have been labeled.

The key element upon which the policy depends is visual recognition. The technologist is depended upon to recognize the patient being reinjected as the same patient he or she drew the blood from just a few hours earlier. If a technologist is scheduled to work half a day or must leave early for a pre-arranged reason, that person does not draw the blood. For unexpected occurrences such as the technologist having to leave work because of illness or any other emergency, another technologist will check the patient wrist-band and talk to the patient to find out if the patient had blood drawn earlier and if the procedure had been explained to him or her; if the patient is unable to respond, the technologist will question the patient's nurse.

We have tried to think of every possible safeguard against a mistake being made. We have found this procedure to work well in our nuclear medicine department.

Chris Taliaferro, CNMT
Sentara Norfolk General Hospital
Norfolk, Virginia

PROBLEMS WITH TECHNETIUM-99m-RED BLOOD CELL LABELING

To the Editor: In a recent letter to the editor, Ponto and Preslar (1) discussed the problems inherent in the poor labeling of technetium-99m-red blood cells ($^{99m}\text{Tc-RBCs}$) for use in Sn-PYP reconstitution. In response to the above-named article, we would like to offer the following information.

In the past we have had a few problems with $^{99m}\text{Tc-RBC}$ labeling. Scans performed on patients injected with Sn-PYP via heparinized catheters produced inferior images because of a poor tag (*i.e.*, *poor image quality with high background activity.*) We found that by flushing the heparin catheter with nonbacteriostatic saline and then injecting the Sn-PYP followed by another flush of nonbacteriostatic saline we were able to get a good tag. (The Sn-PYP may be reacting with the heparin in the catheter.) This flushing technique has helped, especially when the patient doesn't have any other venipuncture site available. Our department is currently using in-vitro tagging (Cadema kit) for transplant patients immunosuppressed with cyclosporin.

We suggest that 3 ml of saline be added to the Sn-PYP kit instead of 6 ml if 3 doses per vial are desired. With less saline volume, any components in the saline that could possibly affect labeling will become a lesser factor. (Also a patient weighing 70 kg receiving 10 $\mu\text{g Sn}^{+2}$ per kg would receive 700 μg of Sn^{+2} .) We experienced a few poor tags using 700 μg per patient.

Some nuclear medicine sites are apparently figuring 200 ng Sn^{+2} per ml of whole blood. An average patient weighing 70 kg will have an approximate blood volume of 5000–5500 ml. Then 200 ng Sn^{+2} per ml for this patient would be 1000–1100 $\mu\text{g Sn}^{+2}$ per patient. We currently give 1000 μg (1 mg) Sn^{+2} per patient with good results.

Calculations:

There are 3.2 mg of SnCl_2 per Mallinckrodt vial
Atomic weight (AW) of Sn^{+2} : ≈ 119
AW of Cl: 35.5
Total AW of SnCl_2 : $119 + 2(35.5) = 190$
Percent of Sn^{+2} : $119/190 = 0.63$
Amount of Sn^{+2} per Mallinckrodt vial: $3.2 \text{ mg} \times 0.63 \approx 2 \text{ mg}$

In summary, our pharmacy is adding 2 ml of saline to the Sn-PYP Mallinckrodt vial, 1 ml (or 1 mg) of which is injected into the patient.

Michael Feldkamp, CNMT
Jay Spicer
University of Kansas Medical Center
Kansas City, Kansas

REFERENCE

1. Ponto JA, Preslar JS. Poor labeling of technetium-99m-RBCs in vivo associated with source of normal saline used for Sn-PYP reconstitution [Letter]. *J Nucl Med Technol* 1990;18:2: 107–108.