clinical, using a variety of tracers according to the exact scientific problem posed, are likely to be fruitful.

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## Detection of Cardiovascular Infections with Radiolabeled Leukocytes

**TO THE EDITOR:** Dr. Cerqueira's editorial in the August 1992 issue of the *Journal* comments on the expanding role of nuclear imaging in the diagnosis of cardiovascular infection utilizing radiolabeled leukocytes. The editorial describes radiolabeled red blood cell (RBC) and platelet contamination of leukocyte preparations as a major complication in the identification of cardiovascular infections. The presence of radiolabeled contaminants is alleged to cause enhanced uptake in areas of hemorrhage and thrombosis, resulting in false-positive scan results.

Dr. Cerqueira discusses limitations of granulocyte isolation and purification techniques commonly utilized in leukocyte labeling procedures, which result in products with nonspecific cell isolation or involve time and equipment requirements which limit their use in most clinical settings. I would like to make Dr. Cerqueira and the editors aware of an improved sedimentation method (*1*), which significantly reduces RBC contamination of leukocyte preparations prior to radiolabeling. This process produces a final product with remarkable reduction in RBC contamination and maintains leukocyte viability with minimal cell manipulation (*2*).

The improved sedimentation method of labeled leukocyte preparation purification was introduced to nuclear pharmacists at the 1990 American Pharmaceutical Association National Meeting (*2*) and at the 1991 American Pharmaceutical Association, Nuclear Pharmacy Division Session entitled, "Novel Approaches to Infectious Disease Imaging" (*3*). Quantitative analysis of sedimentation method results were presented at the 1992 Society of Nuclear Medicine Meeting (*4*). The authors demonstrated improved WBC-to-RBC ratios and improved liver-to-spleen ratios with $^{111}In$-labeled leukocyte preparations when the improved sedimentation method of cell separation was incorporated into the cell labeling procedure. These researchers confirmed previous findings (*2,3*), concluding that the improved sedimentation method produced a better pharmaceutical preparation with potentially better clinical images (*4*).

A complete discussion of RBC contamination removal should also include a review of cell lysis, a process of residual erythrocyte removal by exposure to hypotonic saline. The use of cell lysis in leukocyte preparations may be categorized among purification procedures having limited clinical utility. Granulocytes are known to tolerate a narrow range of osmolalities (*5*). It is also likely that granulocytes in WBC suspensions are especially sensitive to lysis (*6*). It should therefore be considered that cell lysis introduces risk to leukocyte viability, thus increasing the potential for producing variable results.

Radiolabeled leukocytes dispensed to clinicians in nuclear medicine departments should currently provide pharmaceutical preparations of viable radiolabeled leukocyte preparations, free from significant RBC contamination. Nuclear pharmacists continue to direct research in the area of enhanced labeling techniques, and in this manner, work toward the common goal of expanding diagnostic capabilities of radiolabeled leukocyte preparations.

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