

Leukocyte Scintigraphy to Assess Disease Activity in Inflammatory Bowel Disease

TO THE EDITOR: We read with interest the article by Charron et al. (1), who found ^{99m}Tc -HMPAO leukocyte scintigraphy to be an excellent technique for the detection of inflammatory bowel disease (IBD) in pediatric patients. Besides establishing which bowel segments are involved, a knowledge of the current clinical activity is an important factor in the follow-up of IBD patients. Accordingly, efforts are made to calculate the scintigraphic activity by using ^{111}In or ^{99m}Tc -HMPAO-labeled leukocytes. Activity indices are based on quantitative analysis of the bowel-to-bone marrow ratio by using the SPECT technique (2) or semiquantitative scoring of the leukocyte uptake of each bowel segment relative to the bone marrow or liver uptake (3–6).

In the article by Charron et al. (1), which agrees with the findings of Schölmerich et al. (4), the highest segment score was used as an indicator of the scintigraphic activity. We do not agree with the use of this score because we investigated a large number of adult IBD patients with ^{99m}Tc -HMPAO leukocyte scintigraphy and, based on our findings, we suggest using the sum of the segment scores (6). We found significant correlations between the scintigraphic activity and the Best index, the alpha2-globulin level, the fibrinogen level, the fS iron level, the sedimentation rate, the leukocyte count and the platelet count in ulcerative colitis patients (6). When the highest segment score was used to reflect the scintigraphic activity in the same patients, the scintigraphic activity correlated only with the fibrinogen level ($r = 0.35$, $p < 0.02$) and the fS iron level ($r = -0.39$, $p < 0.02$) (unpublished data). Other investigators, finding correlations between the scintigraphic activity and the clinical activity indices or CRP, also prefer to use the sum of the segment scores (3,5).

We wish to emphasize that our results relate to adult IBD patients only; nevertheless, we presume that the summed score technique can be adapted to the examination of pediatric IBD patients as well. The summed score seems to characterize the whole inflamed bowel mass better compared to the highest segment score, which is indicated by its greater correlation with the laboratory and clinical activity parameters.

To summarize, in contrast with Charron et al. (1), we consider that the sum of the segment scores is a more suitable choice to represent scintigraphic activity in IBD patients.

Miklós Papós
Ferenc Nagy
Jenő Láng
László Csernay

Albert Szent-Györgyi Medical University
Szeged, Hungary

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REPLY: We agree with Dr. Papos that the sum of the segment scores is preferable for quantifying disease activity. We recently reported a correlation of sum-of-the-segment scores with the clinical score (1) as defined by Lloyd-Still and Green (2) to be 0.62, whereas the correlation of the erythrocyte sedimentation rate with the clinical score was only 0.24. The aim of our initial publication was not to evaluate the accuracy of different scoring systems. We have now studied over 100 children and we suspect the sum of the segment score will indeed be the most accurate.

Martin Charron
Susan Orenstein

Children's Hospital of Pittsburgh
Pittsburgh, Pennsylvania

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Strontium-89 Injected Through Implanted Ports

TO THE EDITOR: There has been extended discussion in the past regarding the use of ^{89}Sr -chloride in patients who have poor venous access. In particular, patients who have undergone prior chemotherapy and have limited venous access usually rely on an implanted port for blood withdrawal and administration of intravenous pharmaceuticals.

We undertook a simple experiment to determine if the radiation exposure to the patient following injection of ^{89}Sr -chloride through implanted ports.

Two types of implantable port systems were evaluated: the MRI Port and Dome Port. Both were attached to catheters with a three-way Groshong valve system.

Each implantable port/catheter system was filled with 1.3 mCi ^{89}Sr -chloride per 1.8 ml saline solution (volume capacity was determined by manufacturer's [BARD] guidelines and multiple saline infusions).

The activity of ^{89}Sr -chloride was determined based on the manufacturer's (Amersham) calibration time and date. The port/catheter was placed in a dose calibrator and a calibration factor was determined based on the known activity injected into the catheter. This calibration factor was then used to measure the residual activity in the catheter following a 20 ml saline flush.

Bremsstrahlung imaging of the filled port/catheter systems was performed on a single-head gamma camera using a medium-energy collimator. Photopeaks were set at 80 keV and 167 keV with 50% and 20% windows, respectively.

After imaging was complete, each system was flushed with 20 ml saline solution. Following one system flush, no residual activity was measurable in the catheter. Post-flushing images confirmed complete clearance of the port/catheter activity.

Strontium-89-chloride can be safely injected through implantable intravenous port systems as an alternative to the standard peripheral intravenous injection. If proper flushing is performed following admin-