THE LIVER FLOW: A REAPPRaisal

As an important followup to the article, "Hepatic Scintiangiography: The Technical Side of the Story," by Stankiewicz, Giga, and Carretta, September 1977 JNMT, we would like to provide additional information concerning routine performance of hepatic scintigrams.

Some investigators (1) have suggested that the dynamic liver flow study be done routinely as part of the liver scan. They offer the following arguments: the necessity to determine if the scintigraphic defect represents a vascular or avascular area (2); the need to clarify an indeterminate study; and as a preparatory step to the liver biopsy by demonstrating the possible risk due to a vascular lesion (2). One advantage in doing the study as an integral part of the liver scan is that it provides more information. Compared to the radio-opaque hepatic arteriogram, which has a notable morbidity and mortality rate (3), it provides a simple and convenient noninvasive study. Finally, if the information is required, there is no need to reschedule and reinject the patient.

We decided to evaluate the validity and practicality of these arguments in our clinical population. Hepatic scintiangiographic studies were performed on 202 patients. The data we derived from this investigation showed that eight patients had metastases to the liver, three had cirrhosis, and one had an abscess. Of the 202 patients, eight had positive flow studies. This is about 4% of our total population. All eight also had positive static scans. There were no positive flow studies associated with a negative scan in our series.

In consideration, only 12 patients had a positive static image. Of these 12 patients, eight also had a positive flow study (67%). Other investigators have reported this percent to be as high as 87% (2). Note that only 5.9% of our total population had a positive static image and only 4% had a positive flow study (67%). (Table 1).

Our clinic finds that the information gained by the routine use of this procedure is outweighed by the disadvantages of the technique. Obviously, the study is going to increase the cost to the patient. This increase is due to the use of more film, added development costs, and the cost of interpretation, as well as the increased use of technetium and sulfur colloid kits. The liver flow study will also cost in additional time (3) necessary to position the patient and perform the study. If a collimator change is necessary, as in the case of a high sensitivity collimator for the flow study and a high resolution collimator for the static study, the procedure time is then even further increased. In addition, using 10 mCi of technetium sulfur colloid increases the radiation exposure (4) whereby the liver receives 3 to 4 rads.

In summary, we found the number of positive routine flow studies small, while the cost and increased radiation exposure was out of proportion to the diagnostic return. We recommend that rather than do flow studies as part of the routine liver scan, the hepatic scintiangiogram be done on patients whose static images or clinical history would suggest a diagnosis of blood transport deviation or evidence of a space occupying lesion.

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References


HEPATIC SCINTIANGIOGRAPHY:
A CORRECTION

This letter is written to correct an inadvertent error in a paper published in the September issue of the JNMT, "Hepatic Scintiangiography: The Technical Side of the Story," written by me, John L. Giga, and Robert F. Carretta. In discussion prior to publication and upon receipt of the galley proofs for my review, the article appeared acceptable for publication. However, after publication, the article had one mistake. John Giga received an inquiry about this error from a JNMT reader and called me to see if I had seen it. On page 157, under "Materials and Methods," second paragraph, second sentence, the following is in error: "... the transmission
source is placed on a small table directly between the patient and the detector.”

The sentence should read “... the transmission source is placed on a small table directly beneath the patient and the detector.”

I am glad that a fellow technologist called us to question this inconsistency and I hope that this letter will clarify the exact position of the transmission source.

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IMPROVING PATIENT SCHEDULING

In the article entitled “Systematic and Efficient Method of Performing Scintiscans in a Large Volume Nuclear Medicine Department,” *JNMT*, September 1977, methods are described that are similar to the ones that have been utilized at Temple University Hospital for at least five years, and at Crozer-Chester Medical Center, where I am at present. They have proven to be very effective; however, there are additional mechanisms for increasing efficiency.

Regardless of how many patients are added to the schedule on the morning of the day the study is performed, it is imperative that a list of all patients scheduled prior to this time be sent to each nursing station the day before. This list should include the type of study, the approximate time it is to be done, and a notation if a prep is required. This applies to outpatients, as well as inpatients, since an outpatient may be admitted in the interim. It also enables a nurse to perform any necessary nursing functions before the patient leaves the floor. It allows the patients time to prepare himself, as well.

The schedule is also sent to those ancillary departments where a high probability of conflict exists. This enables us to resolve most problems before they develop.

As far as the mode of transportation is concerned, it is the responsibility of the physician to indicate this. It can be most easily accomplished by having the appropriate mode of transportation, along with a check-off box, printed on the requisition.

Adoption of these methods should prove beneficial to all concerned.

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REPLY

There are several reasons why we have not attempted to send a listing of patients to the various nursing units the day before the procedure is to be performed. First and foremost, there are seldom more than six inpatients scheduled for the following day; the remaining requisitions are sent to us without advance notice. With our present technical staff and equipment, we are able to perform 45–55 imaging procedures per day, two-thirds of which are performed on inpatients. The nursing units are notified well in advance by our department concerning those few inpatients that are to have imaging procedures performed either the following day or later in the week. The charge nurse and/or unit secretary will then correlate all other patient items along with the requested imaging procedure on their daily work-sheet. If a previously scheduled outpatient is admitted to the hospital prior to the day that the procedure is to be performed, the referring physician’s office notifies our department and the appropriate clerical work is taken care of. Secondly, there are approximately 40 nursing stations located throughout our institution. At present we have neither the clerical personnel nor the time to perform this task.

At our institution, the bulk of our daily schedule is seldom known prior to midmorning of each day. Also, it is not unlikely for us to receive at any point during the course of the day additional requisitions from various nursing units requesting that procedures be performed that same day. At the present time we do not have any difficulty meeting such demands. Mr. Capuzzi’s suggestion is well taken and if our inpatient schedule becomes overwhelming to the point where scheduling problems do exist, a listing such as described may be advantageous.

Since we are located on the same floor as the diagnostic radiology department, we decided several months ago to formulate a coordinated listing of patients and scheduled procedures. This has been fairly successful for both departments and for the patient as well. However, both departments find it difficult to approximate the time that the patient is to have the requested procedure.

Finally, I cannot agree more that it is the responsibility of the physician to indicate how the patient is to travel. Even though we do have a designated area on our requisition forms for the physician and/or unit to indicate the mode of transportation for each patient, we find that this may not always be reliable. Whether or not the mode of transportation is indicated, we feel that it is the responsibility of each technologist to inquire concerning this matter. At the same time it gives the technologist the opportunity to inquire about such matters as to the need for portable oxygen, precautions to be taken, etc. All this information may be obtained in a few minutes by phone and we feel that it is well worth the effort.

In conclusion, let me state that a particular system may work very efficiently in one nuclear medicine department but not as well in another. In my original article, the suggestions were offered to serve merely as guidelines to other nuclear medicine departments.

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