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Film-Loop Method for Cardiac Motion Images

We have read the recent paper by Silverstein et al. (1) with great interest. Allow us to congratulate the authors on introducing this very useful technique.

To solve the problem of viewing gated images without the aid of a minicomputer or a multiformat imager, we are using a film-loop technique that enables us to obtain inexpensive motion-picture images of cardiac contraction—albeit only for the end-systolic and end-diastolic phases of the cardiac cycle.

After registering standard gated end-systolic and enddiastolic gamma-camera images directly on 35-mm film, we enlarge them onto ordinary x-ray film to facilitate subsequent photocopying with a motor-driven 35-mm camera. First the end-systolic image is photographed on a full film roll (36 frames). The film is then rewound inside the camera, advanced half a frame, and the end-diastolic image photographed in the same way. This results in alternating half-frame end-diastolic and end-systolic images on a film loop that can be projected with a 35-mm projector, which is available in most cardiac laboratories. Needless to say, special care should be exercised to ensure proper overlapping of the images. Marks placed at identical spots on both x-ray films before photocopying will alert the viewer if overlapping was imperfect, since these will then oscillate during projection.

A film-loop method has been used previously by photographing the images obtained with the aid of a minicomputer (2). With our method, ventricular wall motion can be screened effectively in centers where only the basic gamma-camera units are available.

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New Tl-201 Nuclear Decay Data

To establish a consistent system of radioactivity measurements for the radiopharmaceutical industry—one traceable to the national radioactivity measurements system—the National Bureau of Standards has been supervising and administering a research associate program on behalf of seven contributing members of the Atomic Industrial Forum.

The program entails:

- 1. Continuous availability of radioactivity standard reference materials, at 0.1-100 mCi levels, of those radionuclides used in radiopharmaceuticals.
- 2. Continuous demonstration of traceability to the national radioactivity measurements system through the distribution of radioactivity samples of known but undisclosed activity, in the same range of activity levels.
- 3. Assessment of decay-scheme parameters necessary for the correct application of these radionuclides.

Since April 1975, the contributing member companies have been supplied with radioactivity standard reference materials of 17 different radionuclides together with the nuclear decay data from the Evaluated Nuclear Structure Data File (ENSDF) of the ORNL Nuclear Data Project. (ENSDF, which was designed and implemented by the Nuclear Data Project, is a system for standard organization and computer storage of nuclear structure and decay data. The master evaluated file is maintained by the Nuclear Data Project in support of the U.S. Nuclear Data Network under the sponsorship of the U.S. Energy Research and Development Administration.) Whenever NBS measurements of photon intensities (probabilities per decay) or half-lives differ from those tabulated in the Nuclear Data Project's compilation, they are reported to both the Nuclear Data Project and the member companies as soon as possible. The Nuclear Data Project evaluates these and all other available data to derive an updated set of decay-scheme param-

The member companies, upon acceptance of updated

TABLE 1. TI-201 EC DECAY (3.044 D 9)*

Radiation type	Energy (keV)	Intensity (%)	Δ (gr-rad/ μ Ci-h)
Ce-NOP- 1	0.78 4	38 22	0.0006
Auger-L	7.6	78 6	0.0123
Ce-L- 2	15.76 3	11.4 6	0.0038
Ce-L- 3	17.35 3	9.1 5	0.0033
Ce-MNO- 2	27.04 3	3.63 16	0.0021
Ce-MNO- 3	28.63 3	2.85 12	0.0017
Ce-K- 4	52.24 4	7.5 4	0.0083
Auger-K	53.8	3.3 20	0.0038
Ce-K- 5	82.78 7	0.29 4	0.0005
Ce-K- 6	84.33 7	15.5 4	0.0278
Ce-L- 4	120.50 4	1.27 6	0.0033
Ce-MNO- 4	131.78 4	0.397 15	0.0011
Ce-L- 6	152.59 7	2.62 7	0.0085
Ce-MNO- 6	163.87 7	0.810 14	0.0028
X-ray L	10	47 6	0.0099
γ 2	30.60 3	0.310 13	0.0002
γ 3	32.19 3	0.285 12	0.0002
X-ray Kα₂	68.8950 20	27.4 9	0.0402
X-ray Kaı	70.8190 20	46.6 14	0.0704
X-ray Kβ	80.3	20.5 7	0.0351
γ 4	135.34 4	2.65 10	0.0076
γ 5	165.88 7	0.180 20	0.0006
γ 6	167.43 7	10.00 17	0.0357

^{*} I (min) = 0.10%.

The intensity entry 10.00 17 is to be read as 10.00 \pm .17; similarly, the energy entry 167.43 7 is to be read as 167.43 \pm 0.07.

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decay-scheme parameters, will make the necessary adjustments to their calibration factors.

It is the consensus of the contributing member companies to publish in "Letters to the Editor" of the *Journal of Nuclear Medicine* accepted major changes in the nuclear decay data that will be employed in the calibration of their products.

The first change involves the nuclear decay data for thallium-201. The values adopted by the Nuclear Data Project*, and hence by the contributing member companies, are shown in Table 1. The member companies in this program will notify their customers concerning any effect these new Tl-201 nuclear decay data may have on their existing products. The change may affect only the millicurie value

listed on the label but not the actual amount of radioactivity in the package (i.e., the total radiation level or dose rate would remain the same). If the user requires further clarification, however, it is recommended he contact his supplier directly. This concerted change was made on, or about, March 1977.

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FOOTNOTE

* Data provided by M. J. Martin, Nuclear Data Project, Oak Ridge National Laboratory, January 1977.

1ST ANNUAL MEETING ON GENERAL RADIOPHARMACEUTICAL SCIENCE OF

THE RADIOPHARMACEUTICAL SCIENCE COUNCIL THE SOCIETY OF NUCLEAR MEDICINE MIDWINTER MEETING

January 22, 1978

Hyatt Regency Atlanta Hotel

Atlanta, Georgia

The Society of Nuclear Medicine is encouraging the development of its Councils by establishing a "Council Day" to be held in conjunction with the Midwinter Meeting of the Board of Trustees of the Society of Nuclear Medicine.

The Radiopharmaceutical Science Council will use this opportunity to establish an annual meeting on general radiopharmaceutical science. Members of the Council are encouraged to submit papers pertaining to any aspect of radiopharmaceutical science. The Program Committee will attempt to accept as many submitted papers as possible for this meeting, to encourage wide participation.

CALL FOR ABSTRACTS

Abstracts must be typed and limited to less than 250 words. They should be headed by the title of the paper and the names of the authors, with the presenting author underlined. Names and addresses of the authors' institution(s) should also be included. Send the abstract and four copies to:

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DEADLINE: NOVEMBER 15, 1977