TABLE 1
Required Nursing Delay Following Various Dosages of ^{131}I and ^{123}I using Dydek's (*4*) Model and Hedrick's (1) Radiation Dosimetry for ^{124}I and ^{125}I

Isotope	Ingested milk volume (V)	C ($\times 10^{-7}$)*	9.6 mCi Dose			8.6 μCi Dose	100 nCi Dose		
^{131}I	850 cc	13.2	99 days			40	5		
	500	22.5	94			36	4		
	250	45.0	88			29	4		
	100	113	81			22	3		
			30 μCi Dose†				100 μCi Dose†		
			^{124}I-1%	2%	4.8%		^{124}I-1%	2%	4.8%
^{123}I(p,2n)	850	9.76	10 days	13	17		15	19	23
	500	16.6	7	10	15		13	16	21
	250	33.2	5	7	11		9	13	17
	100	82.9	4	5	7		5	8	13
			30 μCi Dose†				100 μCi Dose†		
			^{125}I-0.5%	1%	1.9%		^{125}I-0.5%	1%	1.9%
^{123}I(p,5n)	850	2.68	50 days	65	79		76	92	106
	500	4.55	38	53	68		65	80	94
	250	9.10	22	38	52		49	65	79
	100	22.8	6	18	32		29	44	59

C(t) = dose (μCi)/9,600*[6.35*EXP (A*t) + 0.15*EXP(B*t)]

s decay	A = −1.40	B = −0.034
^{131}I	A = −1.49	B = −0.12
^{124}I	A = −1.57	B = −0.199
^{125}I	A = −1.42	B = −0.045

* C = 0.15/(1.44 * Teff * V * D)
Teff = ln(0.5)/B
D-^{131}I = 16 rad/μCi milk ingested.
-^{124}I = 36 rad/μCi milk ingested.
-^{125}I = 30 rad/μCi milk ingested.

† Columns represent contaminant in percentage of dose administered to mother.

mothers who wish to resume nursing and to use 100 nCi doses of ^{131}I with longer counting times (20 min) if a RAIU is indicated.

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Peter W. Blue
George J. Dydek
Fitzsimons Army Medical Center
Aurora, Colorado

Three-Dimensional Attenuation Coefficients Distribution for SPECT of the Chest

TO THE EDITOR: Macey et al. (*1*) have recently described some boundary detection methods for single photon emission computed tomography (SPECT) using Compton scattered photons. Their conclusion was that the 90° Compton scattering method was the best way to obtain accurate boundary information for attenuation compensation. The authors have also outlined the importance of accurate detection of body boundaries to properly correct images for attenuation, but on the other hand they have set, as it is usually done, a uniform attenuation coefficient within the chest section. This approximation can be, of course, valid for the brain, but it is rough for the abdomen, where great differences in density are usually encountered in the range 0.3 to 2.1 g/cm^3, among the various tissues. Actually, a proper attenuation correction for SPECT of the chest is still an open problem.

It is important to note that the use of the Compton scattering technique not only allows for a definition of object boundaries, but also a description of their internal structure as it has been demonstrated from medicine to engineering (*2*), when proper energy photons are used. In fact, if high-energy gamma rays are used, all the electrons of the atom participate in the scattering process. Consequently, the number of scattered photons is proportional to the electron density and, for the human tissues, to the mass density. This means that the 10–20 min acquisition time/section used by Macey et al. to detect the object boundaries could be used to generate a three-dimensional distribution of the attenuation coefficients. We have developed (*3*) a technique which, using an external linear source of ^{203}Hg and, more recently, a pair of point ^{192}Ir sources

(*4*), permits a direct three-dimensional Compton tomography, without applying reconstruction algorithms. The detector used was a gamma camera, equipped with a medium energy high resolution (MEHR) parallel hole collimator. We have described (*5*) a method to correct each scattering tomogram for attenuation of both primary incident (~300 keV) and 90° scattered beam (~195 keV). The attenuation coefficients, evaluated by means of 90° Compton tomography, using ^{192}Ir sources can permit correction of the SPECT chest sections for attenuation (*6*), keeping, however, in mind the need of calibrating the external source energy with that of technetium-99m.

References

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R. Guzzardi
G. Licitra
C.N.R. Institute of Clinical Physiology
Pisa, Italy

Essentials of Cyclotron Design and Operation: Corrections to Lecture Notes

TO THE EDITOR: In a MiniSymposium/Categorical Course in PET Imaging at the 35th Annual Meeting of the Society in San Francisco, this respondent gave a talk on June 14, 1988, entitled, "Essentials of Cyclotron Design and Operation". It is the intent of this letter to correct an error in the handout notes offered to those who attended that talk, and to clear up some potential misunderstandings.

In the course of an attempt to state that "small" cyclotrons with a proton energy of 11 to 17 MeV could make any amount of carbon-11, nitrogen-13, oxygen-15 or fluorine-18 that a PET imaging facility could ever use, an unfortunate error was made in a statement of maximum available activity. The outline summary notes stated that if activities greater than 0.5 Curie are needed, perhaps a larger machine with a proton energy greater than 18 MeV might be needed.

The intention was righteous, but the 0.5 Ci was in error. As a matter of fact, a cyclotron with 11 MeV proton energy provides saturated activities of the radionuclides listed in the 1 to 2 Ci range (except for ^{13}N) with reasonable beam currents and irradiation times. This respondent witnessed the production of well over 1 Ci of ^{11}C with a 40-min, 40-μCi bombardment of ^{14}N on an 11-MeV cyclotron shortly after the meeting. Makers of small cyclotrons were understandably concerned over the erroneous statement, and this correction is offered with apologies to those concerned.

It is a fact that even the low-energy, single-particle members of the small cyclotron family are capable of making all commonly used PET radionuclides in excess of the needs of a PET imaging facility.

Issue also was taken with a statement that seemed to imply that automated chemical synthesis units do not reduce personnel needs. What this respondent tried to say, albeit poorly, was that these units do not run themselves (as may easily be inferred from sales talk). Such units require initial loading and postprocessing cleaning as well as procurement of supplies and reagents, and this requires some person who, indeed, may be caring for more than one synthesis module. The intended idea was that one cannot add synthesis units without regard for the personnel necessary to support them.

Additionally, the outline notes may have not sufficiently made the point that properly self-shielded cyclotrons greatly reduce construction costs and complications by eliminating the very thick shielding walls of a vault. The notes do, however, warn correctly that care is necessary to determine if a given cyclotron is, indeed, "properly" self shielding.

The outline notes accompanying the Continuing Education Lecture Series audio-visual resulting from the talk have been corrected for the matters discussed here. It is the purpose of this letter to correct the error for those who took outline notes away from the presentation.

The author regrets the erroneous statement and the other confusions, and is grateful for this opportunity to set the record straight.

C. Craig Harris
Duke University Medical Center
Durham, North Carolina

Correction: PET Quantitation: Blessing and Curse

In the Editorial by Di Chiro and Brooks "PET Quantitation: Blessing and Curse," (*J Nucl Med* 1988; 29:1603–1604), an error was made in the first sentence, second paragraph on p. 1604. The correct version is shown below. The printer apologizes for the error.

"We have seen sophisticated statistical methods used by investigators who have barely mastered standard deviations, the material being generated by statisticians who are often blind to the physiological or pathological implications. We believe that a potful of statistics should at least be accompanied by a teaspoon of intuition, if not the other way around."