CONTINUING EDUCATION TEST

A Review of Activity Quantification by Planar Imaging Methods

For each of the following questions, select the best answer. Then circle the number on the CE Tests Answer Sheet that corresponds to the answer you have selected. Keep a record of your responses so that you can compare them with the correct answers, which will be published in the next issue of the *Journal.* Answers to these test questions should be returned on the Answer Sheet no later than May 15, 1995. Supply your name, address, and VOICE number in the spaces provided on the Answer Sheet. Your VOICE number appears on the upper left hand corner of your *Journal* mailing label. No credit can be recorded without it. A 70% correct response rate is required to receive 0.1 CEU credit for this article. Members participating in the continuing education activity will receive documentation on their VOICE transcript, which is issued in March of each year. Nonmembers may request verification of their participation but do not receive transcripts.

A. *Accurate activity quantification of in vivo radioactivity distribution is affected by several factors including:*

101. scatter
102. absorption
103. spatial resolution
104. all of the above
105. 101 and 103 are correct

B. *Correction methods for activity quantitation include which of the following?*

106. excluding scatter by window techniques
107. using narrow beam attenuation coefficients
108. using a pileup factor for correction
109. 106 and 108 are correct
110. none of the above

C. *In the formula* $C_{cor} = C_{pp} - k * C_{scat}$, *$C_{cor}$ is:*

111. the center of rotation
112. the Compton corrected count rate
113. the corrected scatter counts
114. none of the above

D. *A common limitation of the dual-photopeak window method for activity quantification is the increased number of energy windows required for acquisition of radionuclides with multiple energy photons.*

115. true
116. false

E. *The geometric mean method of activity quantification utilizes _____ and _____ count rates for calculation of organ activity.*

117. posterior and lateral
118. anterior and lateral
119. anterior and posterior
120. anterior and oblique

F. *Attenuation correction can be determined using a transmission source to obtain a count with the patient between the source and the camera.*

121. true
122. false

G. *A fundamental drawback with the geometric mean method of activity quantification is the fact that it does not correct for the contribution of scatter to the counts obtained.*

123. true
124. false

H. *When using the asymmetric energy window method for reducing scatter, the energy window is shifted slightly to the lower energy region of the photopeak.*

125. true
126. false

I. *Narrowing of the energy window to reduce scatter results in:*

127. higher count rate and decreased acquisition time
128. higher count rate and increased acquisition time
129. lower count rate and decreased acquisition time
130. lower count rate and increased acquisition time

J. *The buildup factor at infinite depth can be determined by using a:*

131. linear least-squares algorithm
132. non-linear least-squares algorithm
133. curvilinear least-squares algorithm
134. none of the above

K. *The standard method for error correction in planar imaging quantification is:*

135. energy window techniques
136. broad beam linear attenuation coefficient
137. use of a buildup factor
138. none of the above

L. *The geometric mean method when used in activity quantification of volume sources will always give an underestimation of activity.*

139. true
140. false