

CONTINUING EDUCATION TEST

PET Imaging in Neurology

For each of the following questions, select the best answer. Then circle the reader service card number 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 reader service card no later than March 1, 1991. Supply your name, address, and VOICE number in the spaces provided on the card. 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. *Physiological/chemical parameters that can be studied with PET include:*

- 101. protein synthesis.
- 102. cerebral blood pressure.
- 103. cerebral blood flow.
- 104. all of the above.
- 105. 101 and 103 only.

B. *Which of the following radiotracers are useful for PET CBF studies?*

- 106. ^{15}O - water
- 107. ^{82}Rb
- 108. ^{13}N - ammonia
- 109. all of the above

C. *Tracer kinetic models required for quantitative PET studies have been developed and validated for:*

- 110. the local cerebral metabolic rate of glucose using [^{18}F]FDG.
- 111. regional cerebral blood flow using H_2^{15}O .
- 112. the rate of protein synthesis based on cerebral uptake of ^{11}C -DL-tryptophan.
- 113. all of the above.
- 114. 110 and 111 only.

D. *Natural amino acids are suitable to measure the rate of protein synthesis.*

- 115. True
- 116. False

E. *Positioning of the patient's head is very important for neuro-PET imaging because the _____ line is parallel with the detector's "coincidence line."*

- 117. supra-orbital
- 118. infra-orbital
- 119. acanthion
- 120. orbital meatal

F. *When absolute values of the metabolic rate of glucose are not required, what methods are practical for clinical PET analysis?*

- 121. time-activity curves
- 122. % of injected dose per unit volume
- 123. differential absorption ratio
- 124. ratios of average pixel counts in ROIs
- 125. all of the above

G. *For which of the following conditions have PET studies been shown to have clinical utility?*

- 126. brain tumors
- 127. strokes
- 128. complex partial epilepsy
- 129. all of the above

H. *Localization of epileptogenic foci using FDG-PET is successful in approximately what percentage of the patients with partial epilepsy?*

- 130. 10%
- 131. 25%
- 132. 50%
- 133. 70%
- 134. 100%

I. *The presence of compensatory increase in oxygen along with matched decreased blood and metabolism of an affected area is an indication of:*

- 135. tissue death.
- 136. patient intellect.
- 137. tissue viability.
- 138. patient exercise potential after a CVA.

J. *PET has been shown to be useful in differentiating types of dementia based on:*

- 139. neuroreceptor mapping.
- 140. glucose utilization.
- 141. amino acid metabolism.
- 142. all of the above.
- 143. 139 and 140 only.

K. *PET in patients with previously irradiated brain tumors can be valuable in:*

- 144. differentiating between necrosis and recurrent tumors.
- 145. grading brain tumors.
- 146. establishing a histologic diagnosis.
- 147. all of the above.
- 148. 144 and 145 only.

L. *Neuropsychiatric disorders are being researched through PET applications. Which of the following statement(s) is/are not correct.*

- 149. Bipolar illness has shown global depression of the metabolic rate.
- 150. Increased FDG uptake in the orbital gyri and caudate nucleus has been found in compulsive obsessive disorders.
- 151. Cerebral glucose utilization is increased in schizophrenics.
- 152. none of the above
- 153. 149 and 151 only

M. *Which of the following statements are true regarding PET neuroimaging?*

- 154. PET has reached the level of clinical application.
- 155. PET is routinely used to examine patients with functional mental disorders.
- 156. PET scanning cannot be done on children.
- 157. all of the above