

Experimental studies on standardization of 3D-PET imaging and diagnosis.
- focused on its application to preventive medicine -

Toshiaki Sasaki ^{*1}, Akira Ogawa ^{*2}, Kuniaki Ogasawara ^{*2}, Masakazu Kobayashi ^{*2}
Nobukazu Komoribayashi ^{*2}, Hideo Saito ^{*2}, Satoru Hatakeyama ^{*2}, Yoshihiro Saito ^{*2}
Kazunori Terasaki ^{*1} and Koichiro Sera ^{*1}

^{*1}Cyclotron Research Center, Iwate Medical University
348-58 Tomegamori, Takizawa, Iwate 020-0173, Japan

^{*2}Nishina Memorial Cyclotron Research Center
348-58 Tomegamori, Takizawa, Iwate 020-0173, Japan

^{*3}Department of Neurosurgery, Iwate Medical University
19-1 Uchimaru, Morioka 020-8505, Japan

Abstract

In order to improve reliability of the quantitative values given by recent 3D-PET, we have started the studies according to the guidance consisting of five items. They are; 1. acquisition of the basic data by means of existing 2D-PET, 2. fundamental development of the method of quantification for 3D-PET, 3. designing of the phantoms for quality and performance of 3D-PET, 4. investigation of the actual statuses of the methods of PET-scan and diagnosis in other facilities, 5. improvement of accuracy and precision of the quantitative values given by 3D-PET. In this study, we have gathered information about other PET facilities and also have collected the basic data for 265 normal volunteers by means of existing 2D-PET. It is found that the times interval between administration and the start of data acquisition for FDG diagnosis are around 60 min at most facilities. Costs for each diagnosis are around 100,000 yen. We also are planning to establish the standard method of evaluating PET performances which enable us to finish the evaluation within 2 days. We are going to put forward this study in order to guarantee the quality and performance of 3D-PET.