

Examination of transmission scan in the PET study

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Abstract

Transmission scan is necessary for a PET study. In our facilities, we perform a transmission scan usually for 13 minutes in the case of head, 10 minutes in cervical region and 15 minutes in the case of other parts (Z motion =2). If its time can be shortened, the whole time of a PET study is also reduced, and it lightens the pain of the patient to take the study. We tried to find out what the necessary and sufficient counts and time are for obtaining accurate transmission data. It turned out, for example, that when a source of 11 kcps is used for transmission scan, 2.799×10^6 counts are required to obtain clear and stable imaging data. This suggests that in this case the requisite time for the transmission is 4.24 minutes. We use a ^{68}Ge - ^{68}Ga source for transmission and purchase a new source to exchange every two years. The activity of the source is 111MBq at the purchase, and its half life is 288 days. It has been common that once the transmission time is settled, it is not changed. But now that we found out the requisite counts to acquire accurate transmission data, it is possible to adjust the time in accordance with the decay of the source and shorten the whole time of a PET study to lighten the pain of the patient.