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探讨^{13}N-氨水动态心肌灌注显像定量分析方法

Assessment of quantification methods with ^{13}N-NH_3 • H_2O dynamic myocardial perfusion imaging

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中文摘要:

目的 从心肌灌注模型角度出发,对^{13}N-NH_3 • H_2O动态心肌灌注显像的资料进行定量分析,并对不同模型进行评价。方法 对4名正常体检者行^{13}N-NH_3 • H_2O动态心肌灌注显像,用C 软件分别通过Duke模型和Michigan模型进行定量分析,比较心肌血流量(MBF)、心肌氨水摄取率(k_1)、心肌氨水洗脱率(k_2)等定量指标。结果 Duke模型测得心肌的整体MBF、k_1均为(0. 0.332)ml/(g • min),k_2为(0.219±0.253)min^{-1};Michigan模型测得心肌的整体MBF为(0.825±0.401)ml/(g • min)、k_1为(0.704±0.256)ml/(g • min)、k_1/k_2为(3.134±0.715)ml/g。两模型测得的结 相关且均符合相关文献的报道,但Duke模型测得心尖部位的MBF和k_1较Michigan模型均偏大。结论 使用PET/CT ^{13}N-NH_3 • H_2O动态心肌灌注显像定量分析可根据需求选择合适的模型

英文摘要:

Objective To apply ^{13}N-NH_3 • H_2O dynamic myocardial perfusion imaging based on myocardial perfusion models, and to quantitatively analyze the normal imaging data and then evaluate the m **Methods** ^{13}N-NH_3 • H_2O was used as the imaging agent for PET/CT perfusion imaging. Four normal subjects were analyzed quantitatively by Duke model and Michigan model using Carimas softwa and myocardial blood flow (MBF), myocardial ammonia uptake rate (k_1), myocardial ammonia washout rate (k_2) and other quantitative indicators were compared. **Results** In Duke model global MBF k_1 was both (0.770±0.332)ml/(g • min), k_2 was (0.219±0.253)min^{-1}. In Michigan model, global MBF was (0.825±0.401)ml/(g • min), k_1 was (0.704±0.256)ml/(g • min), k_1/k_2 was(3.134±0.715 Though values of MBF and k_1 in apex of Duke model were larger than those of Michigan model, and the results assessed by two models were linearly correlative and consistent with literature reports **Conclusion** For quantitative analysis of ^{13}N-NH_3 • H_2O dynamic myocardial perfusion imaging with PET/CT, it is necessary to choose proper model.

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