

研究报告

新型心肌灌注显像剂⁹⁹Tc^mNDBODC5在兔体内的生物分布

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摘要

制备了 ⁹⁹Tc^mNNBODC5, 并将其经静脉注射到新西兰白兔体内, 进行活体显像, 检测其活体生物分布及离体器官分布, 研究 ⁹⁹Tc^mNDBODC5作为心肌灌注显像剂的可行性。活体生物分布结果显示, ⁹⁹Tc^mNDBODC5的心肌摄取迅速, 心肌摄取量低于 ⁹⁹Tc^mMIBI, ⁹⁹Tc^mNDBODC5的肝清除速度显著快于 ⁹⁹Tc^mMIBI, 在注射后30 min时心与肝的T/NT为0.98±0.52,已接近1, 显著高于 ⁹⁹Tc^mMIBI的心与肝的T/NT(0.56±0.19), P= 0.007。60 min时, ⁹⁹Tc^mNDBODC5的心与肝的T/NT达到高峰,为1.18±0.57, 而 ⁹⁹Tc^mMIBI仅为0.71±0.29。在180 min内, ⁹⁹Tc^mNDBODC5的心与肝的T/NT维持在较高水平。 ⁹⁹Tc^mNDBODC5的肺摄取低, 清除快, 心与肺的T/NT在180 min内保持在1.43±0.37以上, 与 ⁹⁹Tc^mMIBI无显著差别。 ⁹⁹Tc^mNDBODC5的肝清除迅速, 避免了肝内放射性对左室下壁的干扰, 有利于实现早期显像。故 ⁹⁹Tc^mNDBODC有望成为一种生物分布特性较好的新的心肌灌注显像剂。

关键词 [\[^{99m}Tc\(N\)\(PNP5\)\(DBODC\)\][±]](#) 生物分布 肝清除

分类号

Study of biodistribution properties of a new myocardial imaging agent [^{99m}Tc(N)(PNP5)(DBODC)][±]

Abstract

⁹⁹Tc^mNDBODC5 for intravenous injection was prepared. The labelling yield was 95.0%±0.52%. Sixteen New Zealand rabbits were involved and planar gamma imaging was performed at 10 time point after injection of ⁹⁹Tc^mNDBODC5. The radioactivity channels of organs were calculated by regions of interest (ROI) analysis. The 16 rabbits were divided into 4 groups and were sacrificed at 30, 60, 120, and 180 min after injection respectively. The activity for all excised organs were measured by γ well counting for calculating radiouptake. Myocardial uptake for ⁹⁹Tc^mNDBODC5 is high. Though myocardial uptake was lower than ⁹⁹Tc^mMIBI, the liver clearance for ⁹⁹Tc^mNDBODC5 was more rapid than that of ⁹⁹Tc^mMIBI. As early as 30 min after injection, ⁹⁹Tc^mNDBODC5 heart to liver ratio is 0.98±0.52 versus 0.56±0.19 for ⁹⁹Tc^mMIBI (P <0.01). At 60 min post injection, ⁹⁹Tc^mNDBODC5 heart to liver ratio improved to the peak value (1.18±0.57), compared with 0.71±0.29 for ⁹⁹Tc^mMIBI, P <0.01. After 60 min, the heart to liver ratio of ⁹⁹Tc^mNDBODC5 was keeping at a high level until 180 min. ⁹⁹Tc^mNDBODC5 exhibited rapid lung clearance, simi

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lar to that of ^{99m}Tc MIBI. The biodistribution in the isolated organs demonstrated the same trend. The rapid ^{99m}Tc N-DBODC5 liver clearance may allow the earlier imaging, and overcome the photon scatter from the liver with high activity which interfered the inferoapical wall in myocardial images. ^{99m}Tc N-DBODC5 is a promising new myocardial perfusion imaging agent with superior biodistribution properties.

Key words [\[\$^{99m}\text{Tc}\$ \(N\)\(PNP5\)\(DBODC\)\][±]](#) [biodistribution](#) [liver clearance](#)

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