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鼻咽癌Ki67表达与放疗前后18F-FDG PET-CT显像相关性的动物模型及临床研究

冯彦林[1]，冼伟均[1]，袁建伟[1]，张宁[2]，黄克敏[1]，袁白虹[1]，苏少弟[1]，温广华[1]，刘德军[1]，杨明[1]，余丰文[1]，梁伟棠[1]，贺小红[1]，张洋[2]

1.528000 广东佛山，中山大学附属佛山医院核医学科；2.佛山市第一人民医院放疗科

Animal Model and Clinical Studies of Relationship between Ki67 Expression and 18F-FDG PET-CT Imaging of Nasopharyngeal Carcinoma before and after Radiotherapy

FENG Yan-Iin[1]，XIAN Wei-jun[1]，YUAN Jian-wei[1]，ZNANG Ning[2]，HUANG Ke-min[1]，YUAN Bai-hong[1]，SU Shao-di[1]，WEN Guang-hua[1]，LIU De-jun[1]，YANG Ming[1]，YU Feng-wen[1]，LIANG Wei-tang[1]，HE Xiao-hong[1]，ZHANG Yang[2]

1.Department of Nuclear Medicine, Affiliated Foshan Hospital of Sun Yat-sen University, Foshan 528000, China；2.Department of Radiation Therapy，The First Hospital of Foshan

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摘要 目的探讨鼻咽癌Ki67表达与放疗前后SUVmax变化的关系。 方法（1）17只裸鼠鼻咽癌移植瘤模型随机分成对照组、6 Gy放疗组及12 Gy放疗组，各组在放疗前后进行18F-FDG PET-CT显像，并于放疗结束后检测瘤体中Ki67表达的情况，对移植瘤的T/NT与Ki67表达水平变化进行分析；（2）12例初治鼻咽癌患者于放疗前、放疗50 Gy时及放疗结束后1周分别行18F-FDG PET-CT显像，测定SUVmax；另外取其放疗前活检蜡块，用免疫组织化学方法检测组织中Ki67蛋白表达情况，分析Ki67表达与放疗前后SUVmax变化的关系。 结果(1) 鼻咽癌移植瘤Ki67抗原的表达随放疗剂量的增加明显降低，不同组别间Ki67的表达差异有统计学意义（$F=57.8$，$P<0.01$）；（2）不同组别间T/NT差异有统计学意义（$F=14.0$，$P<0.01$）。(3)初治鼻咽癌患者在放疗50Gy时，Ki67 高表达的患者SUVmax水平明显低于低表达者，两者差异有统计学意义（$t=2.235$，$P<0.05$），而在放疗前（$t=0.176,P>0.05$）及放疗结束后则差异没有统计学意义（$t=1.106,P>0.05$）。
结论Ki67是影响鼻咽癌细胞FDG摄取的重要因素，放疗前Ki67的表达水平可能对放疗过程中鼻咽癌SUVmax的下降有重要影响。
关键词： 鼻咽肿物   放射疗法   Ki67   体层摄影术   发射型计算机   裸鼠

Abstract： Objective To investigate the relationship between the expression of Ki67 and the changes in SUVmax of nasopharyngeal carcinoma before and after radiotherapy.Methods(1) Seventeen nude mice transplanted nasopharyngeal carcinoma xenografts were randomly divided into the control group, the 6Gy irradiated group and the 12 Gy irradiated group.The radiation groups underwent 18F-FDG PET-CT examination before and after radiotherapy and the expressions of Ki67 were detected by immunohistochemistry after radiation.Then the changes of the Ki67 expression and T/NT ratios in xenografts were analyzed.(2) Twelve untreated patients with nasopharyngeal carcinoma underwent 18F-FDG PET-CT examination before radiotherapy, during radiation when 50 Gy was given and 1 week after radiation, respectively.Then the SUVmax of nasopharyngeal carcinoma was measured.The expression of Ki67 in patients   paraffin blocks before radiotherapy were detected by immunohistochemical method, and then the correlation between the Ki67 expression and the changes of SUV max during radiation were analyzed. Results(1) The expression of Ki67 antigen in xenografts reduced significantly with increasing radiation dose, and the expressions of Ki67 among different groups were dramatically different ($F=57.8$, $P<0.01$).(2) The T/NT ratios among the different groups were dramatically different ($F=14.0$，$P<0.01$). (3) The SUVmax of lesions in patients highly expressed Ki67 was significantly lower than that in patients with lower Ki67 expression when received 50Gy radiation ($t=2.235,P<0.05$).But there were no statistical difference before radiotherapy ($t=0.176,P>0.05$) or after 12Gy radiation($t=1.106,P>0.05$).ConclusionThe Ki67 expression is an important factor contributing to the FDG uptake of nasopharyngeal carcinoma.And the expression of Ki67 before radiotherapy may have an important impact on the reduction of SUVmax of nasopharyngeal carcinoma during radiation therapy.

Key words： Nasopharyngeal neoplasm   Radiotherapy   Ki67   Tomography   emission- computed   Nude mice

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