DOI: 10.16016/j.1000-5404.1997.04.010

Microdose capsule-based ^{14}C-urea breath test for the diagnosis of *Helicobacter pylori* infection

Chen Jiepin, Xu Caipu, Cheng Saojun*, Xu Qiwang**, Liu Fengxuan***, Wang Zhenhua, Fang Dianchun, Gao Jinhua (Department of Gastroenterology, Southwest Hospital, Third Military Medical University, Chongqing, 630038)

Abstract Objective: To develop a capsulated microdose ^{14}C-urea breath test (^{14}C-UBT) for the detection of Helicobacter pylori (Hp) infection. Methods: A single dose of 3.7×10^4 h Bq of ^{14}C-urea in a capsule was given to the patient. Samples of exhaled gas were collected at the 5th, 10th, 20th, 30th, 45th and 60th minute after the administration and the peak value of exhaled $^{14}CO_2$ was found in the samples collected at the 25th minute. This peak value was taken as the measuring point and directly expressed as Bq/mmol CO_2 to develop a new detecting method. The results were compared with those of Hp cultured and Pathological examinations. Results: 137 cases (Hp$^+$ 83, Hp$^-$ 54) were detected. The samples collected on the 25th minute showed a sensitivity of 97.06%, specificity of 95.12%, positive predictive value of 97.06% and negative predictive value of 95.12% respectively when the mean value of $^{14}CO_2$ in Hp negative subject ± 3s on the 25th minute was taken as the critical value. Conclution: The capsule-based microdose ^{14}C-UBT may replace the conventional ^{14}C-UBT of using a larger dose of (1.83~3.7) ^{14}C as it is non-invasive, safe, rapid, accurate, simple and economic.

Key words ^{14}C-urea breath test; Helicobacter pylori; Chronic gastritis; Peptic ulcer

* Department of Nuclear Medicine; ** Department of Microbiology; *** Department of Pathology

烧冲复合伤早期肺微血管内皮粘附特性变化及 HSD作用的实验研究*

Experimental studies of the early changes in pulmonary microvascular endothelial adhesive feature and effect of hypertonic saline dextran after burn-blast combined injury

金榕兵** 朱佩芳 王正国 (第三军医大学附属大坪医院野战外科研究所第四研究室) 重庆, 630042

多形核白细胞(Polymorphonuclear neutrophil, PMN)在机体防御和免疫监视中起重要作用,但当机体受到创伤、感染及休克等刺激面发生过度炎症反应时,可使 PMN过度活化面释放弹性蛋白酶、胶原蛋白酶、氧自由基等,对脏器的实质细胞和基质产生损伤作用。PMN在肺微血管和组织间隙聚集,是炎症、创伤、感染及休克地较为常见的现象之一,消耗 PMN可对肺组织损伤起到保护作用,可见 PMN在肺损伤发生中起重要作用。本室以往的研究表明:烧冲复合伤时,PMN在肺内聚集及其功能变化与肺损伤的发生有关。但烧伤复合时 PMN在肺组织内聚集的机理目前尚不清楚。

调控白细胞的粘附和迁移至细胞外间质是血管内皮细胞的主要功能之一,主要是通过调控内皮细胞表面细胞粘附分子(Cell adhesion molecules, CAMs)的表达来实现的。CAMs由细胞产生、存在于细胞表面,以配体-受体相结合的形式介导细胞与细胞间的粘附及作用,是白细胞粘附于内皮细胞的物质基础。复合创伤 CAMs的变化规律及作用如何,目前尚未见报道。

本课题以大鼠烧冲复合伤为模型,采用原位杂交、免疫组化、流式细胞、细胞体外培养等技术,对伤后肺组织的 E选择素(E-selectin)、血管细胞粘附分子1(Intercelluar adhesion molecule-1, VCAM-1)、细胞间粘附分子1(Intercelluar adesion molecule-1, icam-1)及 PMN表面的 CD11b在 PMN肺内聚集及肺组织损伤中的作用及其调控机制进行了研究,同时初步观

(下转328页)

* 全军"九五"攻关项目

** 金榕兵,男,33岁,博士研究生

?1994-2016 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

Studies on the mechanism of inactivation of multiple tumour suppressor genes in hepatocellular carcinoma

Xiao Wenhua, Liu Weiwen, Lu Youyong, Gao Chongfeng (Department of Gastroenterology, Southwest Hopital, Third Military Medical Univsersity, Chongqing, 630038)

Abstract Objective: To study the mechanism of inactivation of multiple tumour suppressor genes in hepatocellular carcinoma (HCC). Methods: Inactivation of pYNZ22.1, p53 and Rb tumour suppressor genes and mechanism were studied by PCR, Southern blot and gene sequencing. Results: The hypermethylation and loss of heterozygosity (LOH) at pYNZ221 gene were found in 41.7% (5/12) and 35% (7/20) of HCC respectively. Markedly hypermethylation was accompanied usually with LOH. There are mutation of p53 gene in 50% (14/28) of HCC, most of which presented allelic loss simultaniously. The LOH of Rb gene appeared in 25% (3//13) of HCC. The hypermethylaton of promoter region at Rb gene was only found in one case of hepatic clear-cell cacinoma, but no rearrangement was found. Conclusion: The findings indicate that there are alteration of multiple suprressor genes in HCC; the mechanism of inactivation is multiple and the complete inactivation of gene are participated by valious mechanism.

Key mords liver neoplasms; multiple genes; mechanism of inactivation

(上接320页)

察了7.5% NaCl1/6%葡聚糖70溶液(HSD)对烧冲复合伤早期肺部损伤的影响,旨在进一步探讨烧伤后肺损伤的机理。本研究主要结果及结论如下:

(1)烧冲复合伤的血浆和肺组织 MDA含量、BALF中白蛋白含量、肺组织及 BALF中 MPO活性均不同程度增多,表明伤后脂质过氧化反应增强,肺微血管通透性增加,致伤动物都有不同程度的 PMN肺内扣押。光镜观察见致动物的肺组织中都有炎性细胞浸润,电镜观察也发现于肺毛细血管腔内有多形核白细胞扣押。肺微血管通透性增高可能与 PMN在肺内聚集的增多有关。

(2)原位杂交结果显示:烧冲复合伤早期肺组织的 E-selectin mRNA、VCAM-1 mRNA及 ICAM-1 mRNA均明显增多,以伤后6小时最为明显。E-selectin VCAM-1主要分布于肺泡毛细血管内皮、支气管粘膜下层及基底层,而 ICAM-1主要位于肺泡上皮细胞、毛细血管内皮细胞及支气管粘膜层。免疫组化及肺组织匀浆 ICAM-1相对含量测定结果显示:正常肺组织有一定量的 ICAM-1蛋白质表达,烧冲复合伤后肺 ICAM-1蛋白质含量明显增多,其分布与原位杂交结果相同。流式细胞技术检测结果显示:烧冲复合伤早期外周血 PMN表面 CD11b表达明显增多。这些 CAMs的增多与 PMN在肺内聚集增多密切关系。

(3)烧冲复合伤早期肺 E-selectin、VCAM-1、ICAM-1及 PMN表面 CD11b的表达上调可能与创伤所致的细胞因子和炎症介质的产生增多有密切关系,其中 TNFα是起重要作用的细胞因子之一。

(4)体外研究表明:ICAM-1、CD11b单克隆抗体均能降低烧冲复合伤大鼠肺微血管内皮细胞与 PMN间的粘附,其中 I-CAM-1抗体的作用明显强于 CD11b抗体的作用,提示 ICAM-1、CD11b在肺微血管内皮细胞与 PMN粘附过程中均起重要作用,其中 ICAM-1的作用更为重要,在肺微血管内皮细胞与 PMN粘附过程中,内皮细胞的作用可能居主导地位。这一结论尚未见文献报道。

(5)烧冲复合伤早期用 HSD(4 gm/Kg体重)一次性注入,初步观察能在一定程度上缓解肺组织的损伤。其机理可能与 HSD改善血液流变特性及组织血液灌流等有关。

关键词 灼伤;冲击伤;肺损伤;微血管内皮;细胞粘附分子;E选择素;血管细胞粘附分子-1;细胞间粘附分子-1;CD11b

中图法分类号 R64

(收稿:1996-06-30;修回:1997-07-25)

(编辑 张大春)

?1994-2016 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net