

胸水中 VEGF、TNF- α 的检测对良恶性胸水的鉴别诊断意义

阮光强 王美强 陈国军 马海燕 马敬伟

(广东省台山市中医院 广东 江门 529200)

摘要 目的 探讨检测胸水中血管内皮生长因子(VEGF)、肿瘤坏死因子(TNF- α)水平对良恶性胸水的鉴别诊断意义。方法 采用酶联免疫检测法(ELISA)测定 34 例良性胸腔积液患者和 44 例恶性胸腔积液患者胸水中 VEGF、TNF- α 水平。结果 良性胸腔积液组患者胸水中 TNF- α 水平显著高于恶性胸腔积液组($P<0.05$) ;良性胸腔积液组患者胸水中 VEGF 水平显著低于恶性胸腔积液组($P<0.05$)。结论 胸水中 VEGF、TNF- α 水平的检测对良、恶性胸水患者具有鉴别诊断意义。

关键词 血管内皮生长因子 ;肿瘤坏死因子 ;胸水 ;诊断意义

中图分类号 R561.1 文献标识码 A 文章编号 1673-6273(2012)15-2952-02

Differential Diagnostic Significance of Determination of VEGF, TNF- α in Pleural Effusion between Benign and Malignant Hydrothorax

RUAN Guang-qiang, WANG Xian-qiang, CHEN Guo-jun, MA Hai-yan, MA Jing-wei

(The TCM Hospital of Taishan City, 529200, Taishan, China)

ABSTRACT Objective: To explore the differential diagnostic significance of determination of VEGF, TNF- α in pleural effusion between benign and malignant hydrothorax. **Methods:** The levels of VEGF, TNF- α in pleural effusion of 34 patients with benign hydrothorax, 44 patients with malignant hydrothorax were detected by ELISA. **Results:** The levels of TNF- α in pleural effusion were significantly increased in patients with benign hydrothorax in comparison with those of patients with malignant hydrothorax, and the levels of VEGF were significantly decreased in patients with benign hydrothorax in comparison with those of patients with malignant hydrothorax, the difference was statistically significant ($P<0.05$). **Conclusion:** The levels of VEGF, TNF- α in pleural effusion may be used as an marker in the differential diagnostic significance of benign and malignant hydrothorax.

Key words: VEGF; TNF- α ; Hydrothorax; Diagnostic significance

Chinese Library Classification: R561.1 **Document code:** A

Article ID: 1673-6273(2012)15-2952-02

前言

胸水即胸腔积液,是呼吸系统的常见的临床表现,可由结核性、肿瘤等多种疾病产生病理性渗出液贮留于胸膜腔而形成^[1,2]。因造成胸水的病因较多,有关胸水病因的诊断对疾病的治疗和预后便显得尤为重要^[3],而目前临床常规诊断方法很难确诊胸腔积液的性质^[4]。随着医学检测技术水平的提高,已有多种细胞因子应用于良恶性胸水的鉴别诊断^[5],但寻找胸腔积液中高敏感性、高准确性的标志物质来早期诊断良恶性胸水仍然是临床研究的热点。本研究小组通过测定良性与恶性胸腔积液患者胸水中肿瘤坏死因子(tumor necrosis factor- α , TNF- α)与血管内皮生长因子(vascular endothelial growth factor, VEGF)水平,探讨了胸水中 TNF- α 与 VEGF 对良恶性胸水疾病的鉴别诊断价值,现报道如下。

1 资料与方法

1.1 一般资料

选择 2009 年 4 月~2011 年 4 月在我院住院的胸腔积液患

者 78 例,经临床确诊后分为良性胸腔积液组和恶性胸腔积液组。其中,良性胸腔积液组 34 例,男 18 例,女 16 例,年龄 20~64 岁,平均年龄 47.6 岁,结核性胸膜炎 27 例,肺部感染 3 例,充血性心力衰竭 2 例,胸部外伤 2 例,均依据相关临床资料进行确诊;恶性胸腔积液组 44 例,男 24 例,女 20 例,年龄 51~74 岁,平均年龄 61.4 岁,肺癌 32 例,乳腺癌 5 例,肝癌 4 例,胃癌 2 例,肾癌 1 例,均经病理学或细胞学检查后确诊。

1.2 检测方法^[6,7]

常规无菌条件下穿刺抽取两组患者胸水,留取样本 5 ml,3000r/min 离心 10 min,分离上清液,置于 -40℃ 冰箱保存待测。采用酶联免疫检测法(ELISA)测定胸水中 VEGF 与 TNF- α 水平,试剂盒由上海森雄科技实业有限公司提供,具体操作严格按照试剂盒说明书进行。

1.3 统计学分析

采用 SPSS17.0 统计学软件进行统计分析,计量资料以均值 $\pm$ 标准差($\bar{x} \pm s$)表示,组间比较采用 t 检验, $P<0.05$ 为差异有统计学意义。

2 结果

由表 1 可知,良性胸腔积液组患者胸水中 VEGF 水平显著低于恶性胸腔积液组,差异具有统计学意义($P<0.05$);良性胸腔积液组患者胸水中 TNF- α 水平显著高于恶性胸腔积液组,

作者简介 阮光强(1975-),男,大学本科,主管检验技师,主要从事临床生化检验及免疫检验,电话:13679751799,
E-mail: ruangq_r@163.com

(收稿日期:2012-01-10 接受日期:2012-01-31)

差异亦具有统计学意义($P<0.05$)。

表 1 两组患者胸水中 VEGF、TNF- α 水平比较($\bar{x} \pm s$)
Table 1 Comparison of VEGF and TNF- α levels in pleural fluid of two groups($\bar{x} \pm s$)

Groups	Cases	VEGF(pg/l)	TNF- α (pg/l)
Benign pleural effusion group	34	1743.75 $\pm$ 169.23*	42.31 $\pm$ 5.01*
Malignant pleural effusion group	44	3219.54 $\pm$ 331.24	9.34 $\pm$ 1.07*

Note: * means the difference is significance comparing with the malignant pleural effusion group.

3 讨论

TNF- α 是一种由细菌或肿瘤细胞刺激而激活的单核 - 巨噬细胞分泌的细胞因子,具有广泛的生物活性^[8]。TNF- α 对肿瘤细胞有细胞毒和细胞静止作用,并可与其他细胞因子协同作用,增强其抗肿瘤的作用;此外,因 TNF- α 属于前炎症因子,尚可介导炎症反应与免疫反应^[9,10]。有报道称^[11],当胸膜间皮细胞和巨噬细胞受到细菌及其他炎性刺激时,会分泌大量 TNF- α ,致使胸液中 TNF- α 水平升高。本研究结果显示,良性胸腔积液组患者胸水中 TNF- α 水平显著高于恶性胸腔积液组,与文献报道相似^[12]。其原因可能在于,恶性胸腔积液患者胸水中存在一种 TNF- α 抑制物,该物质可通过抑制胸膜间皮细胞和巨噬细胞分泌和释放 TNF- α ,或加速 TNF- α 的代谢,致使患者胸水中 TNF- α 活性与水平降低,降低了 TNF- α 对恶性肿瘤细胞的细胞毒性作用^[13,14]。

VEGF 是一种对血管生长有强效诱导作用的有丝分裂原,对血管内皮细胞具有特异性^[15,16]。该物质广泛分布于人体内各重要器官和组织中,能够与血管内皮细胞上特异的酪氨酸激酶受体结合,发挥其促进血管生长、增加血管通透性、促进肿瘤转移等生物活性^[17,18]。有报道称^[19,20],新生血管的形成是肿瘤细胞生长、浸润和转移的必要条件,而 VEGF 是肿瘤组织中促进血管病理性形成的介导体,具有强大的促进血管内皮细胞分化、增殖、诱导新生血管形成的作用,并可促进微血管通透性增强的作用,与肿瘤细胞的分化、生长及浸润密切相关,其水平越高,提示肿瘤越趋于恶性。本研究结果显示,恶性胸腔积液组患者胸水中 VEGF 水平显著高于良性胸腔积液组,说明恶性胸水的形成与 VEGF 密切相关,胸水中 VEGF 高表达有助于对良恶性胸水的鉴别诊断。

参考文献(References)

- [1] 陈玉, 齐协飞. 血管内皮生长因子 C 对良、恶性胸腔积液的鉴别诊断价值[J]. 山东医药, 2010, 50(37): 14-15
Chen Yu, Qi Xie-fei. Differential diagnosis value of vascular endothelial growth factor-C for benign or malignant pleural effusion [J]. Shandong Medical Journal, 2010, 50(37): 14-15
- [2] 郭锋, 吴春龙, 陈世勇, 等. 肿瘤标志物联合检测对良恶性胸水鉴别的意义[J]. 中国卫生检验杂志, 2010, 20(5): 1127-1128
Guo Feng, Wu Chun-long, Chen Shi-yong, et al. Clinical value of tumor markers assay in differential diagnosis of pleural effusion [J]. Chinese Journal of Health Laboratory Technology, 2010, 20(8): 1127-1128
- [3] 崔建和, 杨士军, 刘满庆. NSE、MMS、IL-8 联检对良、恶性胸水的临床诊断价值[J]. 放射免疫学杂志, 2005, 18(3): 169-170
Cui Jian-he, Yang Shi-jun, Liu Man-qing. Clinical Diagnostic Value of Combined Determination of Neuron-Specific Enolase (NSE), Middle Molecular Substances (MMS) and IL-8 Contents in Chest Fluid for Verification of Malignancy [J]. Journal of Radioimmunology, 2005, 18(3): 169-170
- [4] 岑慧, 李观强, 李文, 等. 联合检测血清和胸水中多项肿瘤标志物对良恶性胸水的鉴别诊断价值[J]. 中国医药导报, 2011, 8(19): 90-91
Cen Hui, Li Guan-qiang, Li Wen, et al. Differential diagnostic value of joint determination of multiple indices in serum and pleural effusion between benign and malignant pleural exudates [J]. China Medical Herald, 2011, 8(19): 90-91
- [5] 韦庆文, 迟秀文, 杨利桃. 结核病与肿瘤坏死因子和白细胞介素的相关性研究[J]. 检验医学与临床, 2011, 8(2): 148-150
Wei Qing-wen, Chi Xiu-wen, Yang Li-tao. Study of relationship between tuberculous with interleukins and TNF [J]. Laboratory Medicine and Clinic, 2011, 8(2): 148-150
- [6] 孙开宇, 刘婷, 王乐强, 等. 胸水及血清中 ET, FN, CEA 联合检测对良恶性胸水的鉴别诊断[J]. 潍坊医学院学报, 2006, 28(2): 128-130
Sun Kai-yu, Liu Ting, Wang Le-qiang, et al. Differentiation diagnosis value for combined measuring of ET, FN, CEA in hydrothorax and serum in benign and malignant hydrothorax [J]. Acta Acad Med Weifang, 2006, 28(2): 128-130
- [7] 林士军, 刘玉春, 董惠翔, 等. 胸水及血清中内皮素和肿瘤坏死因子测定的临床意义[J]. 青海医药杂志, 2005, 35(1): 1-3
Lin Shi-jun, Liu Yu-chun, Dong Hui-xiang, et al. Detection of TNF- α and ET-1 in serum and pleural effusion with tuberculosis or malignancy [J]. Qinghai Medical Journal, 2005, 35(1): 1-3
- [8] 易辉, 王树立, 崔江禹. COPD 患者 C 反应蛋白、TNF- α 、IL-8、IL-6 临床研究[J]. 现代生物医学进展, 2011, 11(3): 534-537
Yi Hui, Wang Shu-li, Cui Jiang-yu. Effect of CRP, TNF- α , IL-8 and IL-6 in Patients with Chronic Obstructive Pulmonary Disease [J]. Progress in Modern Biomedicine, 2011, 11(3): 534-537
- [9] 许俊华, 陈利华, 侯庆先. 肿瘤坏死因子, γ -干扰素和腺苷脱氨酶对良恶性胸水的诊断价值[J]. 医学检验与临床, 2007, 18(5): 60-61
Xu Jun-hua, Chen Li-hua, Hou Qing-xian. Differential diagnostic value of TNF, IFN γ between benign and malignant pleural exudates [J]. Medical Laboratory Science and Clinics, 2007, 18(5): 60-61
- [10] 李涛, 陈正望. TNF- α 在肿瘤中的作用 [J]. 现代生物医学进展, 2011, 11(18): 3586-3588
Li Tao, Chen Zheng-wang. The role of TNF- α in cancer [J]. Progress in Modern Biomedicine, 2011, 11(18): 3586-3588

(下转第 2958 页)

- foculation best practice policy-partII: patient evaluation, cytology, voided marked, imaging,cystoscopy, hephrology evaluation, andllow-up [J]. Urology,2001,57:604-610
- [13] Trillot N, Susen S, Jude B.Homme replacement therapy and venous thrornboembolism[J].Gynecol Obstet Fertil,2004,32(9):725-728
- [14] 周应芳,夏恩兰.妇科内镜应用的现状及相关问题[J].中华妇产科杂志,2005,40(7):433-434
Zhou Ying-fang, Xia En-lan. Application of endoscopy in gynecology [J]. Chinese Journal of Obstetrics and Gynecology, 2005,40 (7): 433-434
- [15] 石晓明,庞国勋,陆民,等.腹腔镜手术后下肢深静脉血栓形成的研究现状[J].河北医药,2006,28(10):988-989
Shi Xiao-ming, Pang Guo-xun, Lu Ming,et al. Laparoscopic operation for lower extremity deep venous thrombosis after research status [J]. Hebei medical journal,2006,28(10):988-989
- [16] Maillo CL,Martin E,Lopez J, et al. Effect of pneumoperitoneum on venous hemodynamics during laparoscopic cholecystectomy. Infule-nce of patients' age and of surgery [J]. Med Clin (Bare), 2003,120(9): 330-334
- [17] Bergatrom M, Falk P, Park PO, et al. Peritoneal and systemic pH during pneumoperitoneum with CO2 and helium in a pig model [J]. Surg Endose, 2008,22(2):359-364
- [18] Lindberg F, Bjorck M, Rasmussen I, et al. Low frequency of phlebographic deep vein thrombosis after laparoscopic cholecystec-tomy - a pilot study [J]. Clin Appl Thromb Hemost, 2006,12 (4): 421-426
- [19] Freyburger G, Dubreuil M, Audebert A, et al. Changes in haemostasis after laparoscopic surgery in gynaecology: contribution of the thrombin generation test [J]. Haemostasis, 2001,31(1):32-34
- [20] Reich H, et al. Laparoscopic hysterectomy. J Gynecol Surg, 1989, 5: 213-216
-
- (上接第 2953 页)
- [11] Sheski FD, Natarajan V, Pottratz ST. Tumor necrosis factor- α stimulates attachment of small cell lung carcinoma to endothelial cells[J]. J J L Med, 1999,133(3):265-273
- [12] 赵侠,白英.结核性胸膜炎患者血清与胸水中 IL-2, TNF α 和 IFN γ 活性的实验研究[J].医药世界,2009,11(1):24-25
Zhao Xia, Bai Ying. Detection of IL-2, TNF α , IFN γ in serum and pleural effusion with tuberculosis or malignancy [J]. Medical & Pharmaceutical World, 2009,11(1):24-25
- [13] Odeh M, Sabo E, Srugo I, et al. Tumour necrosis factor alpha in the diagnostic assessment of pleural effusion [J]. QJM, 2000,93 (13): 819-824
- [14] Banghman RP. Lower an inhibitor of tumour necrosis factor in pleu-ral effusion [J]. Lab Clin Med, 1991,118(4):326-331
- [15] 陈彦凡,谭映霞,江松福,等.血管内皮生长因子在结核性和恶性胸腔积液鉴别诊断中的意义[J].医师进修杂志,2003,26(6):22-23
Chen Yan-fan, Tan Ying-xia, Jiang Song-fu. The significance of levels of vascular endothelial growth eactorfactor in serum and pleu-ral effusion in differentiating tuberculosis and malignant pleural effusions[J]. Journal of Postgraduates of Medicine, 2003,26(6):22-23
- [16] 高俊珍,吕福祯,唐艳华,等.胸液中 VEGF 测定在良恶性胸液鉴别诊断中的应用[J].中日友好医院学报,2003,17(6):344
- Gao Jun-zhen, Lu Fu-zhen, Tang Yan-hua, et al. The application of pleural effusions vascular endothelial growth factor detection in differential diagnosis of patients with benign and malignant diseases [J]. Journal of China-Japan Friendship Hospital, 2003,17(6):344
- [17] 王书昌,杨学伟,张玉玲.乳腺癌中 Survivin 和 VEGF 的表达[J].现代医学生物进展,2011,11(21):4159-4162
Wang Shu-chang, Yang Xue-wei, Zhang Yu-ling. Survivin and VEGF Expressions in Breast Cancer and their Relations [J]. Progress in Modern Biomedicine, 2011, 11(21): 4159-4162
- [18] Leek RD, Hunt NC, Landers RJ, et al. Macrophage infiltration is associated with VEGF and EGFR expression in breast cancer [J]. Pathol, 2000,190(4):430-436
- [19] Tran J, Master Z, Yu JL, et al. A role for survivin in chemoresistance of endothelial cells mediated by VEGF [J]. Natl Acad Sci USA, 2002, 99(7):4349-4354
- [20] 韩素桂,黄彩云,吴会静,等.联合检测 VEGF, CEA, ADA, AFU 储量对良恶性胸腔积液的诊断价值 [J]. 华北煤炭医学院学报,2011, 13(2):163-164
Han Su-gui, Huang Cai-yun, Wu Hui-jing, et al. Differentiation diagnosis value for comnined measuring of VEGF, CEA, ADA, AFU in hydrothorax in benign and malignant hydrothorax [J]. Journal of North China Coal Medical University, 2011,13(2):163-164