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缺血性脑卒中患者血清超敏 C 反应蛋白、糖化血红蛋白水平 及其与神经功能缺损的关系 *

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摘要 目的:探讨缺血性脑卒中患者血清超敏 C 反应蛋白(hs-CRP)、糖化血红蛋白(HbA1c)水平及其与神经功能缺损的关系。**方法:**选择 2016 年 10 月~2017 年 9 月我院接诊的 123 例缺血性脑卒中患者作为观察组及同期于我院进行体检的健康人群 123 例作为对照组,检测和比较两组血清 hs-CRP、HbA1c 水平的差异,并分析缺血性脑卒中患者血清 hs-CRP、HbA1c 水平与其美国国立卫生研究院卒中量表(NIHSS)评分的关系。**结果:**观察组患者血清 hs-CRP、HbA1c 水平显著高于对照组[(6.23±1.97)mg/L、(7.96±0.65)% vs. (2.54±0.85)mg/L、(5.21±0.30)%],NIHSS 评分明显高于对照组[(4.08±3.12)分 vs. 8.62±3.25分],差异具有统计学意义($P<0.05$);缺血性脑卒中患者血清 hs-CRP、HbA1c 水平与 NIHSS 评分呈显著正相关($r=0.465, -0.564, P<0.05$)。**结论:**缺血性脑卒中患者血清 hs-CRP 和 HbA1c 水平均明显上调,二者可以在一定程度上反映缺血性脑卒中患者神经功能缺损的严重程度。

关键词:缺血性脑卒中;超敏 C 反应蛋白;糖化血红蛋白;神经功能缺损

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Analysis of the Serum Hypersensitive c-reactive Protein and Hba1c Levels in the Patients with Ischemic Stroke and Its Correlation with the Neural Function Defects*

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ABSTRACT Objective: To study the serum hypersensitive c-reactive protein(hs-CRP) and glycosylated hemoglobin(HbA1c) levels in the ischemic stroke patients and their correlation with the neurological deficits. **Methods:** 123 cases of patients with ischemic stroke admitted in our hospital from October 2016 to September 2017 were selected as the observation group and 123 healthy people who underwent physical examination in our hospital during the same period were selected as the control group, the serum hs-CRP and HbA1c levels were detected and compared between the two groups, and the relationship between serum hs-CRP and HbA1c levels in patients with ischemic stroke and their scores on the national institutes of health stroke scale (NIHSS) was analyzed. **Results:** The serum hs-CRP and HbA1c levels in the observation group were significantly higher than those in the control group [(6.23±1.97)mg/L, (7.96±0.65)% vs. (2.54±0.85)mg/L, (5.21±0.30)%], and the NIHSS scores were significantly higher than those in the control group [(4.08±3.12) points vs. 8.62±3.25 points]($P<0.05$). The serum hs-CRP and HbA1c levels were significantly negatively correlated with NIHSS scores in patients with ischemic stroke ($r=0.465, -0.564, P<0.05$). **Conclusion:** The serum hs-CRP and HbA1c levels were significantly up-regulated in the patients with ischemic stroke, which were related to the severity of neurological impairment in patients with ischemic stroke to some extent.

Key words: Ischemic stroke; High sensitivity C reactive protein; Hemoglobin a1c; Neural defect

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前言

缺血性脑卒中通常是由于脑的供血动脉狭窄或闭塞、脑供血不足导致的脑组织坏死,主要发病在中老年人群,其发病机制并不明确,但目前医学上认为与遗传易感、高脂饮食及吸烟等因素相关,有着较高的发病率及死亡率,严重威胁患者的生

命^[3,4]。近年来,随着我国人口老龄化的加剧,脑卒中患病率明显上升趋势^[1,2]。有研究显示炎症反应参与了缺血性脑卒中的发生发展,是缺血性脑卒中患者脑损伤的重要机制之一^[5,6]。超敏 C 反应蛋白(high sensitivity C reactive protein, hs-CRP)是急性时相反应蛋白,在脑卒中患者中表达较高,研究显示血清 hs-CRP 水平与动脉粥样硬化斑块的不稳定性密切相关^[7]。糖化血红蛋白

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(hemoglobin A1c, HbA1c) 是血红蛋白在血糖持续作用下生成的非酶促糖化反应物,能够反映患者血糖控制情况^[10],其水平变化也被证实可作为缺血性脑卒中发生、发展的重要预测指标之一^[18,19]。本研究通过观察缺血性脑卒中患者血清 hs-CRP 和 HbA1c 水平的变化,并分析其与神经功能损伤的关系,旨在为缺血性脑卒中患者的病情评估提供临床参考依据,现将结果报道如下。

1 资料与方法

1.1 一般资料

选择 2016 年 10 月~2017 年 9 月我院接诊的 123 例缺血性脑卒中患者作为观察组进行研究,研究已获得我院伦理委员会批准实施。其中,男 71 例,女 52 例,年龄 39~85 岁,平均 (65.23 ± 7.54) 岁。并选择同期于我院进行体检的健康人群 123 例作为对照组,其中男 66 例,女 57 例,年龄 40~85 岁,平均 (66.17 ± 7.68) 岁,颅脑 CT(和)或 MRI 检查排除脑梗死。

纳入标准:(1)符合符合中国急性缺血性脑卒中诊断指南(2014)版^[11]诊断标准;(2)经颅脑 CT 和(或)MRI 检查证实。(3)病程 7d 内,入院时进行美国国立卫生研究院卒中量表(NIHSS)评

分,其中 <5 分 82 例,5~15 分 25 例,>15 分 16 例。(4)排除标准:合并全身感染、肿瘤、创伤、急性心肌梗死、以及肝肾功能衰竭的患者。

1.2 治疗方法

观察组患者于入院次日采集空腹静脉血,对照组于体检日采集空腹静脉血,采用日立 LABOSPECT 008 全自动生化分析仪测定血糖、血脂及 hs-CRP 水平,TOSOH HLC-723G8 糖化血红蛋白分析仪检测 HbA1c。

1.3 统计学分析

研究数据采用 SPSS20.0 软件进行统计学分析。计量资料以均数 $\pm$ 标准差($\bar{x} \pm s$)表示,组间两两比较使用独立样本 t 检验;计数资料以 $[(n, \%)]$ 表示,组间比较采用 χ^2 检验,使用 Pearson 相关性分析分析血清 hs-CRP、HbA1c 和 NIHSS 的相关性,以 $P < 0.05$ 表示差异具有统计学意义。

2 结果

2.1 两组血清 hs-CRP、HbA1c 水平和 NIHSS 评分的比较

观察组患者血清 hs-CRP、HbA1c 水平、NIHSS 评分均明显高于对照组,差异具有统计学意义($P < 0.05$),见表 1。

表 1 两组血清 hs-CRP、HbA1c 水平和 NIHSS 评分的比较($\bar{x} \pm s$)

Table 1 Comparison of the serum hs-crp, HbA1c levels and NIHSS scores between the two groups($\bar{x} \pm s$)

Groups	n	hs-CRP(mg/L)	HbA1c(%)	NIHSS(分)
Observation group	123	6.23 ± 1.97	7.96 ± 0.65	8.62 ± 3.25
Control group	123	2.54 ± 0.85	5.21 ± 0.30	4.08 ± 3.12
t value		19.074	42.603	11.176
P value		0.000	0.000	0.000

2.2 缺血性脑卒中患者血清 hs-CRP、HbA1c 水平与 NIHSS 的相关性分析

缺血性脑卒中患者血清 hs-CRP、HbA1c 水平均与 NIHSS 呈显著正相关($r = -0.465, -0.564, P < 0.05$),见图 1~图 2。

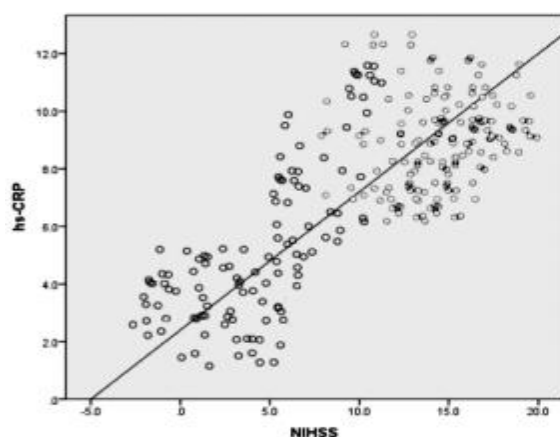


图 1 NIHSS 评分与 hs-CRP 的散点图

Fig.1 Scatter plot of NIHSS score and hs-crp

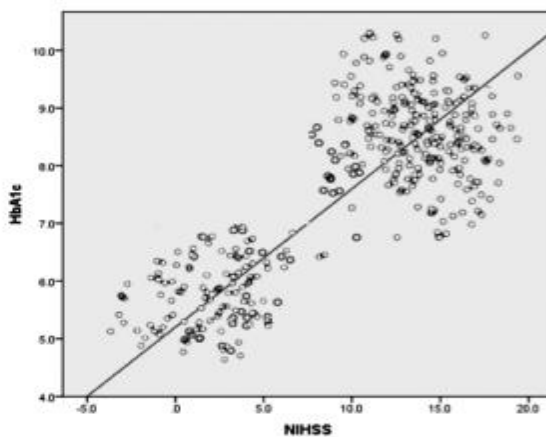


图 2 NIHSS 评分与 HbA1c 的散点图

Fig.2 Scatter diagram of NIHSS score and HbA1c

3 讨论

缺血性脑卒中主要包括缺血性和出血性卒中,主要临床表现为头晕、感觉障碍、血管通透性改变、血管损伤,严重还会导致神经功能缺损,严重威胁人类的生命健康,给患者及其家庭

带来一定的经济负担^[12,13]。NIHSS 是专为急性脑卒中治疗而制定的,是从三个量表中选取而组成的一个量表,包含了每个脑动脉病变可能出现的神经系统检测项目^[14,15]。该表使用简便,能快速被医护人员掌握,且不会引起疲劳,而且可以在一天内多次检查^[16,17]。NIHSS 评分越高,则代表神经功能缺损严重。本

研究结果显示缺血性脑卒中患者的NIHSS评分明显高于正常人群,说明缺血性脑卒中患者的神经功能缺损严重。这与Dippel DW等^[18]研究结果相似。

动脉粥样硬化时炎症反应可以促进血管内的动脉血栓形成,是我国卒中发生的主要原因^[19,20]。有研究显示hs-CRP可以作为缺血性脑卒中发病的危险因素,并可以评估缺血性脑卒中的预后情况^[21,22]。hs-CRP是炎症反应的标志性分子,可以在动脉粥样硬化病变形成局部沉积,刺激单核细胞表达组织因子。作为血管炎症的重要标志物,hs-CRP不仅能促进动脉粥样硬化的形成,而且也可以反映粥样斑块易损性^[23,24]。Goswami K^[25]等研究结果显示缺血性脑卒中患者血清hs-CRP水平升高,且随着病情的加重而增加。本研究结果显示缺血性脑卒中患者血清hs-CRP水平明显高于正常人群,且与NIHSS呈正相关,提示hs-CRP可作为预测缺血性脑卒中的重要指标,且其水平越高,反映脑卒中患者神经功能缺损程度越重。其原因可能在于随着缺血性脑卒中病情的严重,其血清hs-CRP水平升高,诱发血管内皮细胞分泌和表达黏附分子、化学趋化因子,降低动脉内皮细胞纤溶酶原激活物的活性,增加其炎症介质的促炎效应。

缺血性脑卒中患者常常伴有高血糖状态,高血糖状态会加重脑水肿和脑组织损伤,扩大坏死的脑组织面积,从而增加脑梗死的致残率和死亡率。糖代谢异常是动脉粥样硬化血管疾病的重要危险因素,与颈动脉粥样硬化和脑梗死有关^[26,27]。HbA1c是葡萄糖和血红蛋白 β 链N末端缬氨酸的一个稳定加合物,水平异常可反映糖代谢的异常。同时,HbA1c的高水平可使氧解离曲线左移,导致氧解离障碍,进而导致神经组织缺血、缺氧,造成神经变性、功能异常及坏死等^[28,29]。本研究结果显示缺血性脑卒中患者HbA1c水平明显高于正常人群,且与NIHSS呈正相关,提示HbA1c水平越高,发生缺血性脑卒中时神经功能缺损程度越重,病情越严重。这与Kubo Y^[30]等的研究结果一致。

综上所述,缺血性脑卒中患者血清hs-CRP和HbA1c水平均明显上调,二者可以在一定程度上反映缺血性脑卒中患者神经功能缺损的严重程度。

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