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急性胆源性胰腺炎患者 hs-CRP 及 PCT 的表达及意义 *

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摘要 目的:探讨血清超敏 C 反应蛋白(hs-CRP)和降钙素原(PCT)在急性胆源性胰腺炎(ABP)患者中的表达及意义。**方法:**选择本院 2015 年 4 月-2015 年 12 月收治的 56 例 ABP 患者,根据疾病严重程度分为轻症 ABP (MABP 组)38 例及重症 ABP(SABP 组)18 例,根据患者预后分为存活组 52 例和死亡组 4 例,另选 42 例单纯胆结石患者作为对照组。分别于入院第 1、3、7 d 检测所有患者血清中 hs-CRP 和 PCT 水平,对患者进行改良 Ranson 评分、急性生理及慢性健康状况评分 II (APACHE II)评价,分析血清 hs-CRP 及 PCT 水平与两评分的相关性。**结果:**入院后三组血清 hs-CRP、PCT 逐渐升高,第 3 d 到达峰值,随后逐渐下降,但第 7 d 时仍较第 1 d 高($P<0.05$),与对照组相比,MABP 组、SABP 组患者血清中 hs-CRP、PCT 水平明显升高,且 SABP 组患者血清 hs-CRP、PCT 水平显著高于 MABP 组 ($P<0.05$);存活组患者血清 hs-CRP、PCT 水平较死亡组明显较低 ($P<0.05$);患者血清 hs-CRP、PCT 水平改变与改良 Ranson 评分及 APACHE II 评分呈正相关($P<0.05$)。**结论:**ABP 患者血清 hs-CRP 和 PCT 水平呈高表达,检测两指标可评价患者病情严重程度、预测患者预后情况。

关键词:急性胆源性胰腺炎;超敏 C 反应蛋白;降钙素原;意义

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Expression and Significance of hs-CRP and PCT in Patients with Acute Biliary Pancreatitis*

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ABSTRACT Objective: To explore the expression and prognostic significance of hs-CRP and PCT in patients with acute biliary pancreatitis. **Methods:** 56 cases of ABP patients who treated in our hospital from April 2015 to December 2015, according to the severity of the disease were divided into Mild ABP (MABP group) with 38 cases and severe ABP (SABP group) with 18 cases. According to the prognosis of the patients, they were divided into the survival group with 52 cases and death group with 4 cases. Another 42 cases with simple gallstone patients as the control group. Hs-CRP and PCT levels were detected in all patients, after admission of first, third and 7th, respectively, and the modified Ranson score, Acute Physiology and Chronic Health Evaluation II score were determined. Analysed the correlation between serum hs-CRP, PCT levels and the two score. **Results:** After admission, Serum hs-CRP and PCT levels in three groups reached the peak at the third day, then decreased gradually, but the 7th day was still higher than the first day ($P<0.05$). Compared with the control group, MABP group and SABP group serum hs-CRP and PCT levels were significantly increased, and the serum hs-CRP and PCT levels in SABP group was significantly higher than that in MABP group ($P<0.05$). Serum hs-CRP and PCT levels of survival group were significantly lower than death group ($P<0.05$). The hs-CRP and PCT levels were positively correlated with Modified Ranson score and APACHE score ($P<0.05$). **Conclusion:** High expression of serum hs-CRP and PCT levels in ABP patients, the detection of two indicators can evaluate the severity of the patient's condition, predict the prognosis of patients.

Key words: Acute biliary pancreatitis; High sensitive C reactive protein; Procalcitonin; Significance

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前言

急性胆源性胰腺炎(acute biliary pancreatitis, ABP)是急性胰腺炎的一种,约占其 60%-70%^[1],多由胆道系统疾病如胆结石、胆道蛔虫、胆管狭窄、胆系感染等引起,胆汁逆流入胰管,胰管压力升高破裂,胆汁、胰液渗入到胰腺间质引起胰腺组织自

我消化、坏死,而引起该病^[2]。临床常见急性上腹部疼痛、恶心、呕吐、发热等症状^[3],根据疾病严重程度可分为轻症 ABP (MABP)和重症 ABP(SABP)^[4],该病病情凶险、并发症多,预后差,因此及时准确的诊断该病,并对 ABP 患者的病情做出早期全面评估,对于个体化治疗及改善预后、降低病死率均有重要意义。临床上常用急性生理及慢性健康状况评分 II (Acute

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Physiology and Chronic Health Evaluation II, APACHE II)、改良 Ranson 评分对 ABP 患者病情进行评估并判断预后,但此评分繁琐,不利于疾病动态监测^[5]。随着炎症因子参与 ABP 发病的研究越来越多,各种炎症因子对该病的诊疗及预后评估显现出重要的临床意义。超敏 C 反应蛋白 (high sensitive C reactive protein, hs-CRP) 在组织损伤、坏死、感染等急性炎症情况下可急剧升高,是目前反应机体炎症水平的敏感指标^[6]。降钙素原 (procalcitonin, PCT) 作为重要的炎症反应标志物,在全身性感染方面具有高特异性和灵敏性^[7]。因此,本文通过检测 ABP 患者体内血清 PCT 和 hs-CRP 水平,结合改良 Ranson 评分、APACHE II 评分,探讨该炎症因子在疾病中的表达及意义。

1 资料与方法

1.1 研究对象

选择本院 2015 年 4 月-2015 年 12 月收治的 56 例 ABP 患者,其中男性 32 例,女性 24 例,年龄 25-55 岁,平均年龄 (45.32±6.58) 岁;所有病例均根据中国胰腺炎诊治指南制定的诊断标准^[8],并通过实验室检查及影像学检查后确诊。排除标准:合并慢性炎症、严重心脑血管疾病、内分泌系统疾病、肝肾功受损、肿瘤、免疫系统等疾病者。56 例 ABP 患者根据疾病严重程度分为轻症 ABP (MABP 组) 38 例及重症 ABP (SABP 组) 18 例, MABP 组男性 22 例,女性 16 例,年龄 28-55 岁,平均年龄 (46.35±4.79) 岁; SABP 组男性 10 例,女性 8 例,年龄 26-52 岁,平均年龄 (42.21±6.42) 岁。56 例 ABP 患者根据预后情况分为存活组 52 例和死亡组 4 例,存活组男性 30 例,女性 22 例,年龄 26-54 岁,平均年龄 (45.35±5.78) 岁;死亡组男性 2 例,女性 2 例,年龄 26-55 岁,平均年龄 (45.23±5.56) 岁。另选取本院住院的 42 例单纯胆囊结石症患者作为对照组,男性 23 例,女

性 19 例,年龄 25-48 岁,平均年龄 (35.65±6.55) 岁。上述各组在性别构成比、年龄等方面比较均无统计学差异 ($P>0.05$),具有可比性。本次实验已通过医院伦理委员会同意。

1.2 检测方法

所有 ABP 患者在入院第 1d 进行改良 Ranson 评分^[9]和 APACHE II 评分^[10],均采用西医内科常规诊疗措施,予胃肠减压、抗感染、改善血液循环等治疗,并和对照组患者分别于住院第 1、3、7 d 空腹采集静脉血 5 mL,收集的血液标本在离心机中 3500 r/min 离心 10 min,提取上层血清于 -40℃ 低温下保存待测。血清 hs-CRP 检测采用免疫透射比浊法测定,试剂盒由德国 DadeBehring Marburg GmbH 公司提供;血清 PCT 检测采用双抗夹心免疫测定法和最终酶联荧光法相结合测定,试剂盒由美国 Rapidbio 公司提供,所有操作均按照试剂盒说明书及仪器操作说明完成。

1.3 统计学处理

所有数据应用 SPSS17.0 统计软件进行分析,计量资料以均数±标准差 ($\bar{x} \pm s$) 表示,多组间比较采用单因素方差分析,相关性分析采用 Spearman 相关分析。以 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 各组入院后不同时期 hs-CRP、PCT 水平变化

入院后 1 d、3 d、7 d, MABP 组、SABP 组患者血清中 hs-CRP、PCT 水平均明显高于对照组,且 SABP 患者血清 hs-CRP、PCT 水平显著高于 MABP 组,差异均有统计学意义 ($P<0.05$)。入院后,三组血清 hs-CRP、PCT 逐渐升高,第 3d 到达峰值,随后逐渐下降,但第 7 d 时仍较第 1 天高,差异有统计学意义 ($P<0.05$)。

表 1 各组入院后不同时间 hs-CRP、PCT 水平变化

Table 1 Changes of hs-CRP and PCT levels at different times in each group

Groups	n	hs-CRP(mg/L)			PCT(μg/L)		
		1 d	3 d	7 d	1 d	3 d	7 d
SABP group	18	20.07±3.59* [#]	53.61±7.26* ^{#&}	38.97±5.88* ^{#&}	1.03±0.47* [#]	3.74±1.03* ^{#&}	2.57±0.58* ^{#&}
MABP group	38	18.73±2.67*	33.89±4.76* ^{&}	27.36±3.49* ^{&}	0.63±0.35*	1.95±0.68* ^{&}	1.04±0.42* ^{&}
Control group	42	0.65±0.18	1.83±0.32 ^{&}	1.04±0.25 ^{&}	0.25±0.18	0.45±0.16 ^{&}	0.38±0.14 ^{&}
F		808.886	1096.593	1064.129	40.316	187.022	219.973
P		0.000	0.000	0.000	0.000	0.000	0.000

Note: Compared with control group, * $P<0.05$; Compared with MABP group, [#] $P<0.05$; Compared with 1d, [&] $P<0.05$.

2.2 存活组与死亡组血清 hs-CRP、PCT 水平比较

异有统计学意义 ($P<0.05$)。

存活组患者血清 hs-CRP、PCT 水平较死亡组明显较低,差

表 2 存活组与死亡组血清 hs-CRP、PCT 水平变化

Table 2 Changes of hs-CRP and PCT levels in survival group and death group

Groups	n	hs-CRP(mg/L)	PCT(μg/L)
Survival group	52	45.63±5.76	2.36±0.94
Death group	4	60.38±7.21	4.07±1.37
t		4.859	3.401
P		0.000	0.000

2.3 ABP 患者血清 hs-CRP、PCT 水平和改良 Ranson 评分、APACHE II 评分相关性分析

应用 Spearman 相关性分析显示,患者血清 hs-CRP 水平与改良 Ranson 评分、APACHE II 评分呈正相关($r=0.747, 0.752, P<0.05$);血清 PCT 水平与改良 Ranson 评分、APACHE II 评分亦呈正相关($r=0.683, 0.694, P<0.05$)。

3 讨论

急性胰腺炎是胰酶在胰腺内被激活,引起胰腺组织自身消化的一种炎性反应^[1],多为良性自限性病变,但也有病情严重引起死亡者。随着人们生活水平及饮食习惯的改变,胆结石的发病率逐年升高,ABP 的发病率亦随之提高。胆结石引起胆总管 Vater 壶腹部阻塞、水肿,是该病发生的主要原因^[2]。及早对 ABP 患者的病情进行评估,对于选择合适的治疗方案,防止病情发展,有重要作用。改良 Ranson 评分、APACHE II 评分是评估该病的常用方法^[3],改良 Ranson 评分系统的 11 项检测指标的阳性率与疾病预后有良好的相关性,但需入院后观察 48 小时后得出结论,APACHE II 评分系统覆盖了急性生理指标、慢性病的影响、年龄等 12 项指标,对于危重疾病的预测较全面客观且敏感,但其评分项目较多,年龄也会引起一定的结果偏差^[4]。Kasimu 等^[4]用改良 Ranson 评分评估 ABP 患者,测得其敏感度为 96.4%,特异性为 96.7%。虽然这两种评分方法准确性高,但相对复杂且有局限性,无法及时动态观察了解病情。近年来研究显示,血清 hs-CRP 和 PCT、脂肪酶和淀粉酶等与 ABP 的发生发展相关,可根据其变化评估病情的严重程度,并预测预后^[5,6]。

C 反应蛋白(C reactive protein,CRP)是一种急性时相反应蛋白,正常人血清中含量很少,在机体出现局部炎症、损伤刺激、感染等情况时,会迅速升高,参与宿主的预防、控制炎症作用^[7]。hs-CRP 与普通 CRP 属于同一种蛋白,因其测定方法更敏感而命名。有文献报道,hs-CRP 诊断坏死胰腺炎的敏感性可达到 67%-100%^[8],血清 hs-CRP 水平还可反映胰腺细胞损伤坏死的程度,与其临床预后指标有明显相关性^[9]。PCT 是一种机体全身炎症反应的特异性指标^[20],在胰腺感染坏死的患者体内 PCT 明显升高^[21]。PCT 正常情况下由甲状腺 C 细胞分泌,健康人体内浓度较低,在严重感染时,肺、肝、腺结肠及外周血中的白细胞介素、肿瘤坏死因子等均可诱导产生 PCT,且 PCT 的升高与感染严重程度呈正相关,在细菌感染伴全身炎症反应中、非感染性的全身炎症反应综合征和多器官功能障碍综合征中均可见升高。PCT 较其他细胞因子的产生更早,有利于早期判断患者病情严重程度,其特异性及敏感度也均略高于其他指标。

在本研究中,通过检测 3 组不同时期的血清 hs-CRP、PCT 水平,发现与对照组相比,SABP 组、MABP 组的水平明显较高,SABP 组升高更明显,且 SABP 组水平平均高于同时期 MABP 组($P<0.05$)。说明 ABP 患者血清 hs-CRP、PCT 水平明显上升,且病情越重,上升越明显。可能是因为,轻症病变主要局限于胰腺本身,外在病变很少,全身反应不明显,因此产生的炎症因子也相对较少,重症则由于炎症因子的次级瀑布效应,病情较重,全身症状显著,故其炎症因子水平平均高于轻症患者,提示血清 hs-CRP、PCT 可以在一定程度上反应疾病的严重程

度。3 组血清 hs-CRP、PCT 在入院后第 3 d 达到峰值,后逐渐下降,第 7 d 时,SABP、MABP 组血清 hs-CRP、PCT 水平有所降低,但仍高于对照组,差异具有统计学意义($P<0.05$)。以上结果说明 hs-CRP 可早期诊断 ABP 的病情严重程度,但在入院后第 3d,诊断更准确。这是由于当胆总管阻塞,胰管压力增高,胰液外渗引起胰腺自身组织消化、溶解,引起急性炎症,胰液中的消化酶进入到血液循环引起急性胰腺炎,从而使血清 hs-CRP 表达升高,但 hs-CRP 的峰值常出现较晚(24 h 后)^[22],在本本次研究中,hs-CRP 的峰值出现在入院后第 3 d。比较存活组与死亡组的血清 hs-CRP、PCT 水平发现,存活组患者炎症因子水平较死亡组明显较低($P<0.05$),说明 hs-CRP、PCT 对于疾病严重程度有一定评估作用,可以用来预测患者预后。进一步相关性分析显示,血清 hs-CRP、PCT 水平与改良 Ranson 评分、APACHE II 评分均呈正相关,说明这两种炎症因子对于 ABP 病情的严重程度判断、治疗及预测预后有重要作用。

综上所述,ABP 患者血清 hs-CRP 和 PCT 水平显著上升,检测两指标可以用于评价患者病情、预测患者预后情况,值得临床推广应用。

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