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急诊 ERCP 对急性胆源性胰腺炎伴胆管炎患者血清淀粉酶水平及肠功能恢复的影响*

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摘要 目的:探讨急诊经内镜逆行性胰胆管造影术(ERCP)对急性胆源性胰腺炎(ABP)伴胆管炎患者血清淀粉酶水平及肠功能恢复的影响。**方法:**回顾性收集 2020 年 2 月至 2022 年 2 月期间我院肝胆胰脾外科收治的 93 例 ABP 伴胆管炎患者作为本次实验的研究对象,依据治疗方法的不同将患者分为实验组(n=48)和对照组(n=45),对照组患者采用保守药物治疗,实验组患者在对照组治疗基础上于入院 24 至 48 小时内行急诊 ERCP 术,比较两组患者症状缓解时间、住院时间、治疗费用、肝功能[谷丙氨酸转氨酶(ALT)、谷草氨酸转氨酶(AST)和谷氨酰转肽酶(GGT)]、肠功能恢复时间、炎症因子[C 反应蛋白(CRP)、白细胞介素-6(IL-6)、白细胞介素-8(IL-8)和肿瘤坏死因子- α (TNF- α)]、血清淀粉酶(SAMY)、白细胞(WBC)、总胆红素(TBIL)水平及恢复时间,记录两组患者并发症发生情况。**结果:**实验组恶心呕吐消失时间、腹痛缓解时间、退烧时间、住院时间均低于对照组,治疗费用高于对照组($P<0.05$)。治疗后两组 ALT、AST 和 GGT 等肝功能指标均降低,且实验组低于对照组($P<0.05$)。实验组肛门恢复排气时间、开始进食时间和初次自行排便时间较对照组更短($P<0.05$)。治疗后两组 CRP、IL-6、IL-8 和 TNF- α 等炎症因子水平均降低,且实验组低于对照组($P<0.05$)。治疗后两组 SAMY、WBC 和 TBIL 等指标均降低,且实验组低于对照组($P<0.05$)。实验组 SAMY、WBC 和 TBIL 恢复时间均较对照组更短($P<0.05$)。实验组并发症发生率为 8.33%,低于对照组 20.00%,差异无统计学意义($P>0.05$)。**结论:**急诊 ERCP 治疗 ABP 伴胆管炎患者,可有效缓解相关症状,改善肝功能,降低炎症因子和 SAMY 水平,促进肠功能恢复,安全可靠。

关键词:经内镜逆行性胰胆管造影术;急性胆源性胰腺炎;胆管炎;血清淀粉酶

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Effects of Emergency ERCP on Serum Amylase Level and Intestinal Function Recovery in Patients with Acute Biliary Pancreatitis Complicated with Cholangitis*

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ABSTRACT Objective: To explore the effects of emergency endoscopic retrograde cholangiopancreatography (ERCP) on serum amylase level and intestinal function recovery in patients with acute biliary pancreatitis (ABP) complicated with cholangitis. **Methods:** 93 patients with ABP complicated with cholangitis who were treated in department of hepatobiliary and pancreatic surgery of the hospital between February 2020 and February 2022 were retrospectively collected as the research subjects of this experiment, and the patients were divided into experimental group (n=48) and control group (n=45) according to the different treatment methods. The patients in control group were treated with conservative drugs while the patients in experimental group underwent emergency ERCP within 24 to 48 hours after admission on the basis of the treatment in the control group. The symptom relief time, hospital stay, treatment cost, liver function indicators [alanine aminotransferase (ALT), aspartate aminotransferase (AST), glutamyl transpeptidase (GGT)], intestinal function recovery time, inflammatory factors [C-reactive protein (CRP), interleukin-6 (IL-6), interleukin-8 (IL-8), tumor necrosis factor- α (TNF- α)] and levels and recovery times of serum amylase (SAMY), white blood cells (WBC) and total bilirubin (TBIL) were compared between the two groups. The occurrence of complications in the two groups were recorded. **Results:** The disappearance time of nausea and vomiting, abdominal pain relief time, fever reduction time and hospital stay in experimental group were all shorter than those in

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control group, and the treatment cost was higher than that in control group ($P<0.05$). After treatment, the liver function indicators such as ALT, AST and GGT were decreased in the two groups, and the indicators in experimental group were lower than those in control group ($P<0.05$). The anal exhaust recovery time, time to start eating and first self-defecation time were shorter in experimental group than those in control group ($P<0.05$). After treatment, the levels of inflammatory factors of CRP, IL-6, IL-8 and TNF- α in the two groups were reduced, and the levels were lower in experimental group compared to control group ($P<0.05$). After treatment, the SAMY, WBC and TBIL were declined in both groups, and the three indicators in experimental group were lower compared to control group ($P<0.05$). The recovery times of SAMY, WBC and TBIL in experimental group were shorter than those in control group ($P<0.05$). The total incidence rate of complications was 8.33% in experimental group, which was lower than 20.00% in control group ($P>0.05$). **Conclusion:** Emergency ERCP in the treatment of patients with ABP complicated with cholangitis can effectively relieve the related symptoms, improve the liver function, reduce the levels of inflammatory factors and SAMY, and promote the recovery of intestinal function, thus it is safe and reliable.

Key words: Endoscopic retrograde cholangiopancreatography; Acute biliary pancreatitis; Cholangitis; Serum amylase

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前言

急性胆源性胰腺炎(Acute biliary pancreatitis, ABP)多在饮酒及饱餐后发病,患者临床表现为突然发作的剧烈持续性腹胀、腹痛,且疼痛由上腹部向侧腹部、胸背部放射,伴有恶心、呕吐等症状,且呕吐后腹胀腹痛无明显缓解^[1]。轻症患者疼痛较轻微,随着病情进展,重症患者可出现腹水、黄疸、出血、休克等腹膜炎及重症胰腺炎症状,威胁患者生命健康^[2]。既往研究指出,约有40%的ABP患者可并发胆管炎^[3],ABP伴胆管炎患者较单一ABP患者病情更为凶险,多由细菌感染或胆道梗阻引发,临床致死率更高^[4,5]。ERCP术是新型内镜与放射技术结合的诊疗手段^[6],在十二指肠镜直视下将导管置于胰胆管开出口,注入造影剂后行十二指肠乳头括约肌切开术和鼻胆汁引流术等操

作,具有明确胰管形态位置、改善胆道梗阻、创伤小、效率高等优势^[7,8],行ERCP术可有效减少ABP患者并发症的发生率,缩短住院时间,改善患者预后^[9]。基于此,本次研究探讨急诊ERCP治疗ABP伴胆管炎患者临床效果,分析其对于患者血清淀粉酶(Serum amylase, SAMY)及肠功能恢复等指标的影响,具体如下。

1 资料与方法

1.1 一般资料

回顾性收集2020年2月至2022年2月期间我院肝胆胰腺外科收治的93例ABP伴胆管炎患者作为本次实验的研究对象,依据治疗方法的不同将患者分为实验组($n=48$)和对照组($n=45$),两组患者一般资料无明显差异($P>0.05$),见表1。

表1 一般资料($n, \bar{x} \pm s$)
Table 1 General data ($n, \bar{x} \pm s$)

Groups	Gender(n)		Age(years old)	APACHE II ^[10] classification(n)		Time from onset to admission(h)
	Male	Female		Mild	Severe	
Experimental group ($n=48$)	27	21	54.73 \pm 3.28	31	17	26.83 \pm 3.72
Control group($n=45$)	22	23	55.62 \pm 3.16	32	13	25.91 \pm 4.05
χ^2/t		0.505	1.331		0.453	1.142
P		0.477	0.187		0.501	0.257

1.2 纳入排除标准

纳入标准:(1)所有患者均符合《急性胰腺炎诊治指南(2014)》^[11]中指出的ABP诊断标准,且经影像学、实验室和病理检查确诊为ABP伴胆管炎;(2)患者临床表现为急性腹痛、腹胀、发热、黄疸和恶心呕吐等典型症状;(3)SAMY活性高于正常值3倍以上;(4)符合ERCP手术指证者;18岁以上成年人。排除标准:(1)妊娠期、哺乳期妇女;(2)合并恶性肿瘤疾病、血液疾病或自身免疫性疾病者;(3)重要器官功能不全或缺陷者;(4)精神异常无法配合完成本次实验者。

1.3 方法

所有患者均依据急症给予常规禁食、胃肠减压、抗感染、补充电解质等常规治疗,对照组患者采用保守药物治疗,先以0.1 mg 醋酸奥曲肽(深圳翰宇药业股份有限公司;国药准字H20051565)静脉推注,再以50 mL 0.9%氯化钠溶液稀释0.3 mg的醋酸奥曲肽后静脉泵入,持续治疗7 d。实验组患者在常规治疗和对照组治疗基础上于入院24至48小时内行急诊ERCP术,术前8 h禁食,4 h禁水,术前行血常规、凝血功能检查和碘过敏实验等常规检查,手术开始前10 min静脉注射10 mg盐酸消旋山莨菪碱注射液(新乡市常乐制药有限责任公司;国药准字H41023771)、50 mg盐酸哌替啶(青海制药厂有

限公司;国药准字 H63020022)和 10 mg 地西洋(国药集团容生制药有限公司;国药准字 H41020631)等镇静剂和解痉剂,口服利多卡因(济川药业集团有限公司;国药准字 H20059049)将咽部局部麻醉,待麻醉生效后,嘱患者保持坐卧位,口含牙垫,行 ERCP 造影检查以确定十二指肠乳头、胆总管和胰管位置,帮助确诊,确定位置后插入十二指肠肠镜,于十二指肠乳头处逆行胆管插管成功后注入 3%碘海醇造影剂 [通用电气药业(上海)有限公司;国药准字 H20000595],观察胆道、胆总管情况以及结石分布情况,确定结石情况后行内镜下乳头括约肌切开术,若结石直径较小则直接取石,若直径较大则碎石后再取石,若结石位置处于壶腹部,则以针状刀乳头预切开后取石,必要时加用鼻胆管引流取石。术后留置鼻胆管外引流,并行常规 ABP 治疗,内镜治疗完毕后依据患者自身情况择期行胆囊切除术。

1.4 观察指标

(1)症状改善时间、住院时间、治疗费用:观察并比较两组患者治疗后恶心呕吐消失时间、腹痛缓解时间、退烧时间、住院时间和治疗费用等情况。(2)治疗前后肝功能情况:采用全自动生化分析仪(济南程腾生物技术有限公司;BK-280)检测两组患者治疗前后谷丙转氨酶(alanine aminotransferase,ALT)、谷草转氨酶(Aspartate aminotransferase,AST)和谷氨酰转肽酶(Glutamyl transpeptidase,GGT)等肝功能指标。(3)肠功能恢复

情况:观察并记录两组患者治疗后肛门恢复排气时间、开始进食时间和初次自行排便时间,以判断肠功能恢复情况。(4)血清炎症因子:采集两组患者治疗前后空腹静脉血,检测 CRP、IL-6、IL-8 和 TNF-α 等血清炎症因子指标^[2],严格按照试剂盒说明书(北京普利莱基因技术有限公司)要求操作。(5)SAMY、白细胞(white blood cell,WBC)、总胆红素(total bilirubin,TBIL):采用全自动生化分析仪(济南程腾生物技术有限公司;BK-280)检测两组患者治疗前后血清 SAMY、WBC 和 TBIL 含量,并对比两组 SAMY、WBC 和 TBIL 恢复至正常水平时间。(6)并发症发生情况:统计并比较两组患者出现胰腺假性囊肿、胸腹腔积液、消化道出血、胆道狭窄和腹腔感染等并发症人数,计算总发生率。

1.5 统计学分析

SPSS 22.0 软件处理本次数据,计量资料以($\bar{x} \pm s$)表示,t 检验;计数资料以(n,%)表示,卡方检验; $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 症状改善、住院时间和费用

与对照组相比,实验组恶心呕吐消失时间、腹痛缓解时间、退烧时间、住院时间更短,治疗费用更高($P < 0.05$),详见表 2。

表 2 症状改善、住院时间和费用($\bar{x} \pm s$)

Table 2 Symptom improvement, hospital stay and cost ($\bar{x} \pm s$)

Groups	Disappearance time of nausea and vomiting(d)	Abdominal pain relief time(d)	Fever reduction time(d)	Hospital stay(d)	Treatment cost (ten thousand yuan)
Experimental group (n=48)	2.76±0.73	5.83±2.11	4.09±1.03	13.35±3.78	5.26±1.78
Control group(n=45)	4.92±0.84	8.27±2.36	6.31±1.27	16.74±4.05	3.79±1.03
t	13.259	5.263	9.285	4.175	4.832
P	<0.001	<0.001	<0.001	<0.001	<0.001

2.2 肝功能指标

治疗前两组 ALT、AST 和 GGT 水平无明显差异($P > 0.05$),

治疗后两组 ALT、AST 和 GGT 等肝功能指标均降低,且实验组更低($P < 0.05$),详见表 3。

表 3 肝功能指标($\bar{x} \pm s$, U/L)

Table 3 Indicators of liver function in the two groups ($\bar{x} \pm s$, U/L)

Groups	ALT		AST		GGT	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Experimental group(n=48)	80.83±2.31	49.86±4.77	67.78±5.42	46.21±3.28	84.69±3.25	60.21±4.11
Control group (n=45)	80.69±2.79	63.08±5.46	67.65±4.89	59.47±3.95	84.84±3.98	70.89±4.82
t	0.264	12.455	0.121	17.656	0.200	11.521
P	0.792	<0.001	0.904	<0.001	0.842	<0.001

2.3 肠功能恢复时间

实验组肛门恢复排气时间、开始进食时间和初次自行排便时间短于对照组($P < 0.05$),详见表 4。

治疗前两组血清 CRP、IL-6、IL-8 和 TNF-α 水平无明显差异($P > 0.05$),治疗后两组上述炎症因子水平均降低,且实验组更低($P < 0.05$),详见表 5。

2.4 治疗前后血清炎症因子水平

表 4 肠功能恢复时间($\bar{x}\pm s, h$)

Table 4 Intestinal function recovery time in the two groups ($\bar{x}\pm s, h$)

Groups	Anal exhaust recovery time	Time to start eating	First self-defecation time
Experimental group(n=48)	18.23±4.65	52.41±13.27	46.35±15.09
Control group(n=45)	25.78±6.49	75.43±20.08	66.73±18.62
t	6.480	6.561	5.815
P	<0.001	<0.001	<0.001

表 5 治疗前后血清炎症因子水平($\bar{x}\pm s, \mu g/L$)

Table 5 Levels of serum inflammatory factors before and after treatment ($\bar{x}\pm s, \mu g/L$)

Groups	CRP		IL-6		IL-8		TNF- α	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Experimental group(n=48)	5.63±1.25	2.78±0.21	13.75±1.95	5.61±1.07	135.71±11.27	82.05±7.41	93.45±8.11	21.74±4.43
Control group(n=45)	5.65±1.19	4.53±0.36	14.02±1.28	9.47±1.33	136.84±10.09	104.75±8.92	93.78±7.62	58.96±5.21
t	0.079	28.853	0.784	15.467	0.508	13.382	0.202	37.192
P	0.937	<0.001	0.435	<0.001	0.613	<0.001	0.840	<0.001

2.5 治疗前后 SAMY、WBC 和 TBIL 水平

($P>0.05$), 治疗后两组上述指标均降低, 且实验组更低($P<0.05$), 详见表 6。

治疗前两组患者 SAMY、WBC 和 TBIL 水平无明显差异

表 6 治疗前后 SAMY、WBC 和 TBIL 水平($\bar{x}\pm s$)

Table 6 Levels of SAMY, WBC and TBIL in the two groups before and after treatment ($\bar{x}\pm s$)

Groups	SAMY(U/L)		WBC($\times 10^9/L$)		TBIL($\mu mol/L$)	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Experimental group(n=48)	1169.74±213.41	258.49±24.73	13.72±3.12	8.36±1.65	51.28±1.75	28.17±3.31
Control group(n=45)	1173.58±222.50	396.06±21.85	13.63±2.87	11.16±2.13	51.35±2.09	36.94±2.98
t	0.085	28.355	0.144	7.112	0.176	13.397
P	0.933	<0.001	0.885	<0.001	0.861	<0.001

2.6 SAMY、WBC 和 TBIL 恢复时间

($P<0.05$), 详见表 7。

实验组 SAMY、WBC 和 TBIL 恢复时间均较对照组更短

表 7 SAMY、WBC 和 TBIL 恢复时间($\bar{x}\pm s, d$)

Table 7 Recovery times of SAMY, WBC and TBIL ($\bar{x}\pm s, d$)

Groups	SAMY recovery time	WBC recovery time	TBIL recovery time
Experimental group(n=48)	4.12±1.73	4.29±1.24	5.73±0.91
Control group(n=45)	5.73±1.92	6.18±2.38	7.85±1.12
t	4.253	4.846	10.046
P	<0.001	<0.001	<0.001

2.7 并发症发生率

实验组并发症发生率为 8.33%, 与对照组相比无差异($P>0.05$), 详见表 8。

ABP 属于肝胆外科常见疾病, 主要因结石嵌顿于壶腹部或胆汁异常反流使得细菌进入胰胆管, 激活胰腺消化酶, 引起括约肌痉挛, 使得胰胆管通道梗阻, 引发持续性胆道梗阻, 继而出现胰腺自身消化急性炎症反应^[13]。既往研究显示, ABP 的发病

3 讨论

表 8 并发症发生率[例(%)]
Table 8 Incidence rates of complications [n (%)]

Groups	Pancreatic pseudocyst	Thoracoabdominal effusion	Gastrointestinal bleeding	Biliary stenosis	Abdominal infection	Total incidence rate
Experimental group(n=48)	1(2.08)	1(2.08)	0(0)	2(4.17)	0(0)	4(8.33)
Control group (n=45)	2(4.44)	2(4.44)	1(2.22)	3(6.68)	1(2.22)	9(20.00)
χ^2						2.629
<i>P</i>						0.105

率居所有急性胰腺炎的 40~60%^[14],具有发病急、起病快、病情危重、死亡率高、并发症多等典型特征,极易并发胆管炎,对患者生命安全产生极大威胁^[15]。治疗 ABP 伴胆管炎的关键在于采取及时有效的治疗尽早解除梗阻,使胰胆管恢复畅通,改善炎症^[16],帮助患者恢复健康。

本次研究采用保守药物治疗和急诊 ERCP 术治疗 ABP 伴胆管炎患者,结果表明,与保守治疗相比,ERCP 治疗可明显缩短患者恶心呕吐消失时间、腹痛缓解时间、退烧时间和住院时间,但一定程度上增加了治疗费用。与传统药物治疗相比,手术治疗难以避免费用稍高,但传统药物保守治疗多从症状入手加以治疗,难以从根本上解决病因,造成病情多次反复,难以痊愈^[7]。而 ERCP 术在内镜观察下明确病变位置,精准治疗病根,从而快速高效缓解患者相关症状,缩短症状缓解时间和住院时间^[8]。本研究结果还发现,经 ERCP 治疗后实验组肝功能指标均明显改善,肠功能恢复效果更好,表明与保守药物治疗相比,这也与乔江蓉等^[19]研究相符。ERCP 术对于患者肝功能和肠功能的保护作用更佳。当胆道系统受到感染时,AST 等肝功能指标化验值显著升高,肝功能损伤较为严重^[20],经药物治疗后虽有所下降,但药物同样会对肝脏产生损伤,而 ERCP 术则很好的避免了大量使用药物对肝脏产生的负担,进而发挥保护肝功能的作用^[21]。ERCP 术作为微创手术,创伤较小,且精准度较好,不必破坏患者 ODDI 括约肌,且术后多数患者无需 T 管插管引流,对于患者胃肠功能保护作用较好,相较于药物刺激更能保护肠功能,帮助其尽快恢复^[22]。

本次研究还显示,药物和 ERCP 治疗均可降低 ABP 伴胆管炎患者血清炎症因子水平和 SAMY、WBC 和 TBIL 水平,且 ERCP 治疗对于上述指标的改善效果更强,实验组 SAMY、WBC 和 TBIL 恢复时间均较对照组更短,说明 ERCP 术对于患者炎症反应的抑制作用更佳,且能帮助抑制 SAMY、WBC 和 TBIL 水平,促进患者康复,这也与韩肃等^[23]实验结论一致。ABP 伴胆管炎传统治疗多采用药物控制和必要时开展开腹手术来解除胆道梗阻^[24],ERCP 术相较于传统治疗创伤更小,可有效减少创面感染的发生率,阻止炎症反应发生,抑制血清炎症因子的释放^[25],同时通过鼻胆管引流减少胆汁胰管反流从而抑制 SAMY 活性,从而避免病情进一步恶化,促进患者康复^[26]。因此,行 ERCP 术对于 ABP 伴胆管炎患者可有效抑制患者血清炎症因子水平,帮助恢复 SAMY、WBC 和 TBIL。此外,实验组患者并发症无对照组相比无明显统计学差异,表明 ERCP 术应用于 ABP 伴胆管炎患者安全性较好,无明显不良反应发生。

综上所述,急诊 ERCP 治疗 ABP 伴胆管炎效果较好,可明显缓解相关症状,保护肝功能和肠功能,促进肠功能恢复,同时降低血清炎症因子水平和 SAMY 水平,且术后并发症发生率较低,安全有效,提示 ERCP 术可作为 ABP 伴胆管炎患者临床治疗的首选方案,帮助患者早日康复。

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