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· 专题研究 ·

胰管支架治疗高三酰甘油血症性胰腺炎的疗效:附33例报告

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摘要

背景与目的:高三酰甘油血症性胰腺炎(HTGP)发病率逐年增高,至今没有相关的治疗指南,目前主要采用以降脂为主的保守治疗,但治疗效果并不理想,病死率和并发症发生率仍然较高,预后也相对较差,因此单纯的保守治疗存在一定局限性。本研究评价胰管支架置入治疗HTGP患者的有效性和安全性,以期为临床治疗提供新的思路。

方法:回顾分析作者单位2017年1月—2020年7月所有经胰管支架置入治疗的HTGP患者临床资料,根据纳入与排除标准筛选入组病例。统计纳入病例的胰管梗阻情况;比较入院及治疗48h后的APACHE II评分、血清甘油三酯(TG)水平、血糖水平;记录治疗后并发症发生率、病死率、新发器官功能衰竭发生率、禁食时间、住院时间、住院花费等。

结果:共纳入33例患者,其中男15例,女18例;33例患者平均年龄(37.42±9.69)岁,血清TG水平中位数19.83(11.85~39.18)mmol/L;其中16例存在胰管蛋白栓,胰管蛋白栓在轻、中、重度HTGP中的发生率分别为17%、56%、100%,与无胰管蛋白栓患者比较,有胰管蛋白栓的患者病情更重。2例(6%)发生与ERCP有关的血清淀粉酶升高;3例(9%)发生术后并发症。所有患者通过胰管支架全部治愈,于入院后3(2~5)d恢复经口进食,住院时间中位数为5(3~9)d,治疗48h后APACHE II评分较入院时降低约70%,发病48h内行胰管支架置入的患者禁食时间、住院时间较发病48h后行胰管支架置入的患者分别缩短33%、38%,住院花费减少33%,差异均有统计学意义(均P<0.05)。

结论:早期胰管支架治疗可以快速缓解HTGP患者的临床症状、大幅度减少住院时间并改善患者预后,是一种安全有效的治疗新策略。

关键词

急性胰腺炎;高甘油三酯血症;胰管支架

中图分类号:R657.5

Efficacy of pancreatic duct stenting in treatment of hypertriglyceridemic pancreatitis: a report of 33 cases

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Abstract

Background and Aims: The incidence rate of hypertriglyceridemic pancreatitis (HTGP) has been continuously increasing in recent years, and there is no relevant guideline for its treatment available so far. Currently, the main treatment is conservative treatment based on lipid-lowering therapy, but the treatment efficacy is unsatisfactory, and the mortality and incidence rates of complications are still high, so the prognosis is relatively poor. Therefore, simple conservative treatment has some limitations. This study was conducted to evaluate the effectiveness and safety of pancreatic duct stent implantation in the treatment of HTGP, so as to provide a new approach for clinical management of this condition.

Methods: The clinical data of all patients with HTGP undergoing pancreatic duct stenting from January 2017 to July 2020 were reviewed, and the eligible patients were picked up according to the inclusion and exclusion criteria. In the included patients, the incidence of pancreatic ductal obstruction was observed; the APACHE II score, serum triglyceride (TG) level and blood glucose level were compared between admission and 48 h after treatment; the incidence of complications, mortality, incidence of new organ failure, the lengths of time for fasting and hospitalization as well as the hospitalization expenses were analyzed.

Results: A total of 33 patients were included, with 15 males and 18 females. Of the patients, the average age was (37.42±9.69) years, and the median serum TG level was 19.83 (11.85–39.18) mmol/L; 16 cases had pancreatic duct protein thrombus, and the incidence rates of pancreatic duct protein thrombus in cases with mild, moderate and severe HTGP were 17%, 56% and 100%, respectively. The severity of illness in patients with pancreatic duct protein thrombus was greater than those without pancreatic duct protein thrombus. Two patients (6%) developed post-ERCP hyperamylasemia, and postoperative complications occurred in 3 patients (9%). All patients were cured after pancreatic duct stenting. The median time of oral feeding was 3 (2–5) d, and the median length of hospital stay was 5 (3–9) d. After 48-h treatment, the APACHE II score decreased by approximately 70% compared with that at admission. In patients who underwent pancreatic duct stenting within 48 h after onset, the fasting time and hospitalization time were shortened by 33% and 38%, and the hospitalization cost was reduced by 33% compared with those undergoing pancreatic duct stenting over 48 h after onset, and all the differences had statistical significance (all $P<0.05$).

Conclusion: Early pancreatic duct stenting treatment can quickly alleviate the clinical symptoms of HTGP patients, significantly reduce the length of hospital stay and improve the prognosis. It is a safe and effective new treatment strategy.

Key words

Pancreatitis; Hypertriglyceridemia; Pancreatic Duct Stent

CLC number: R657.5

高三酰甘油血症性胰腺炎 (hypertriglyceridemic pancreatitis, HTGP) 是急性胰腺炎的常见类型, 由于人们生活水平的不断提高, HTGP 的发病率也逐年升高, 约占 AP 发病总数的 10%^[1-2]。相比于其他类型的胰腺炎, HTGP 呈现出重症化^[3]、易复发^[4]、年轻化^[5]等特点, 由于发病机制尚不完全明确当前还没有相关指南指导 HTGP 的治疗^[6]。研究认为血清甘油三酯 (TG) 是 HTGP 发生的危险因素^[7-8], 因此目前主要采取以降脂为主的保守治疗方式^[9]。但是在中度重症和重症 HTGP 患者中, 保守治疗的

效果不佳, 仍然具有较高的并发症和病死率, 因此 HTGP 的治疗依旧是一个难题^[1, 10-11]。近几年胰管支架在胆源性胰腺炎的治疗中逐渐被应用^[12-13], 然而在临床工作中发现, HTGP 患者也存在着胰管阻塞造成的胰液引流不畅, 而通畅胰液引流对于 HTGP 患者症状缓解及快速恢复有重要意义。基于以上临床观察, 本文报告近 3 年来内镜逆行胰胆管造影 (ERCP) 下胰管支架置入治疗 HTGP 患者的临床疗效。

1 资料与方法

1.1 一般资料

2017年1月1日—2020年7月1日,我院共收治诊断为HTGP患者309例,收治时向患者及家属充分告知胰管支架置入治疗与保守治疗两种治疗方式供选择,经患者及家属慎重考虑,共有33例患者选择胰管支架置入治疗。诊断标准:AP的诊断需至少满足以下3项中的2项:(1)与AP相关的腹痛;(2)血清淀粉酶或脂肪酶活性大于正常值上限的3倍;(3)影像学符合AP的表现。AP诊断成立的基础之上,满足TG>1 000 mg/dL (11.3 mmol/L)或者TG 500~1 000 mg/dL (5.65~11.3 mmol/L)且血清呈乳糜状态。为了保证研究同质化,本研究依照以下纳排标准进行筛选。纳入标准:(1)明确诊断为HTGP患者;(2)以HTGP为主要诊断者;(3)为首次发作的HTGP患者。排除标准:(1)妊娠及哺乳期妇女;(2)慢性胰腺炎急性发作;(3)一般情况差或因药物过敏无法耐受ERCP手术者;(4)合并胆道疾病,如胆囊结石或胆总管结石。

1.2 伦理

本研究获得宁夏医科大学总医院医院伦理委员会批准(批号:2019-467),患者均自愿参与本研究并签署知情同意书及ERCP手术同意书。

1.3 治疗方法

33例HTGP患者入院后即给予禁食、补液、镇痛、抑酶、降脂(胰岛素联合低分子肝素)等治疗,除给予以上保守治疗措施外,于入院后24 h内行胰管支架置入术,术后停用抑酶药物。胰腺炎治愈后2个月复查CT拔出胰管支架,若胰周积液较多可适度延长支架留置时间。

1.4 干预措施

所有内镜操作均由操作经验10年以上的医师完成,内镜通过胃腔到达十二指肠降段,于十二

指肠内侧寻找十二指肠大乳头,导丝引导法进行胰管插管,插管成功X线确认导丝沿着胰管方向走行,跟进十二指肠乳头括约肌切开刀抽吸胰管直到观察到清亮胰液流出,沿导丝置入胰管支架。术中发现十二指肠大乳头明显水肿、开口过小,或术前预计需同时行胆道造影者,术中行内镜下乳头切开术(EPT)。

1.5 观察指标

入院及治疗48 h后的APACHE II评分、TG水平、血糖水平、并发症发生率、病死率、新发器官功能衰竭发生率、禁食时间、住院时间、住院花费。

1.6 统计学处理

运用SPSS 21.0软件进行数据统计分析。符合正态分布的计量资料以均数±标准差($\bar{x} \pm s$)表示,组间比较采用独立样本 t 检验;非正态分布的计量资料以中位数(四分位间距)[$M (IQR)$]表示,组间比较采用Mann-Whitney U 检验。计数资料以例数(百分比)[$n (%)$]表示,组间采用 χ^2 检验。 $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 术中情况

33例患者均成功完成胰管支架置入,术中16例(48%)可明显观察到胰管内充满大量白色黏稠物质,本文称其为胰管蛋白栓(图1),胰管蛋白栓在轻、中、重度HTGP中的发生率分别为17% (2/12)、56% (9/16)、100% (5/5)。胰管中存在该物质的HTGP患者入院时血糖、Balthazar CT评分、APACHE II评分、以及治疗后48 h血糖均高于无胰管蛋白栓患者(均 $P < 0.05$)(表1)。十二指肠乳头括约肌切开刀抽吸清理该物质后,可见清亮胰液引出。去除白色物质行细胞学检查为无规则坏死组织,少量炎症细胞浸润。

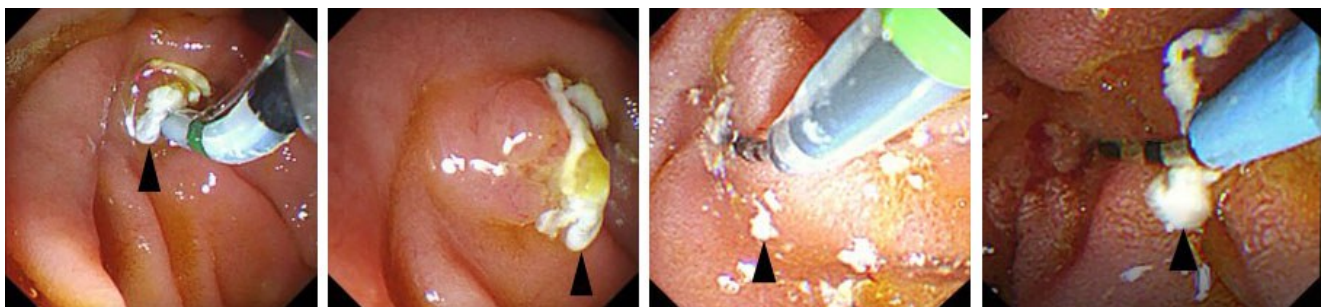


图1 术中发现的胰管蛋白栓(黑色三角所指)

Figure 1 The pancreatic duct protein thrombus found during operation (indicated by the black triangle)

表1 有、无胰管蛋白栓的患者入院时严重程度以及治疗前后血糖比较

Table 1 Comparison of disease severities at admission and blood glucose before and after treatment between patients with and without pancreatic duct protein thrombus

| 指标 | 有胰管蛋白栓(n=16) | 无胰管蛋白栓(n=17) | t/Z | P |
|-------------------------------------|--------------------|------------------|-------|-------|
| APACHE II评分(分, $\bar{x} \pm s$) | 8.00(7.00~11.00) | 5.00(2.00~8.00) | -2.77 | 0.005 |
| Balthazar CT评分(分, $\bar{x} \pm s$) | 7.19±1.75 | 5.60±1.50 | -2.69 | 0.012 |
| 入院时血糖[mmol/L, <i>M(IQR)</i>] | 15.83(11.16~19.89) | 6.93(5.77~13.78) | -2.88 | 0.004 |
| 治疗48 h血糖(mmol/L, $\bar{x} \pm s$) | 11.50±4.39 | 7.42±3.5 | -2.93 | 0.006 |

2.2 与ERCP相关的不良反应

所有患者未出现ERCP术后胰腺炎, 但胰管支架置入术后2例患者出现术后淀粉酶升高, 其中1例为插管困难患者考虑与术中刺激胰管造成, 2例患者的血清淀粉酶均在48 h内恢复正常未出现严重不良反应。

2.3 疗效

33例患者于内镜术后腹痛症状均有不同程度

缓解, 并于入院后3(2~5) d恢复经口进食, 住院时间中位数为5(3~9) d, 治疗48 h后APACHE II评分较入院时降低约70%。部分患者术前胰腺周围渗出较多, 在胰管支架置入3个月左右复查显示胰周积液都有不同程度的吸收(图2)。所有患者均治愈出院。

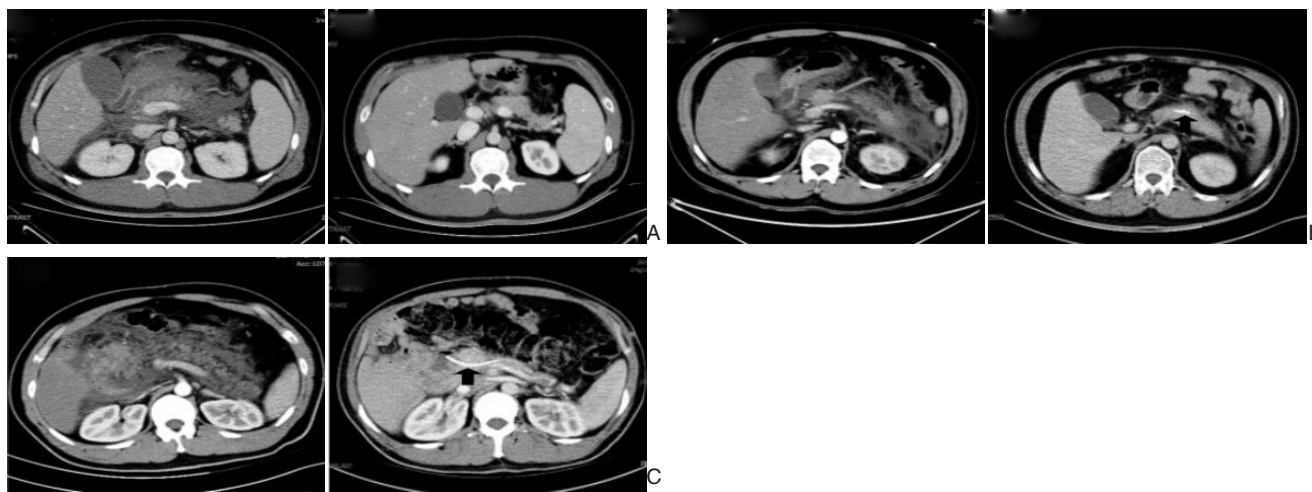


图2 患者术前、术后复查CT图像 A: 42岁男性患者, 发病72 h入院, 入院时TG为43.12 mmol/L, 腹部CT显示胰腺部分坏死, 胰周大量积液(左), 出院3个月后复查CT显示胰腺形态基本恢复, 胰周积液基本全部吸收, 胰管支架已经取出(右); B: 31岁男性患者, 发病48 h入院, 入院时TG为13.87 mmol/L, 腹部CT显示胰尾部大量渗出(左), 出院2个月后复查CT显示胰尾部仅存少量积液(右), 胰管支架在位(黑色箭头); C: 33岁男性患者, 发病18 h入院, 入院时TG为59.27 mmol/L, CT显示胰腺形态改变并伴有胰腺坏死, 胰周大量渗出(左), 出院4个月后复查CT显示胰腺形态基本恢复胰周积液基本吸收(右), 胰管支架在位(黑色箭头)

Figure 2 Preoperative and postoperative CT images of the patients A: A 42-year old male patient, admitted 72 h after onset, with a TG level of 43.12 mmol/L at admission, and abdominal CT scan showing partial pancreatic necrosis and massive peripancreatic fluid collections (left), and CT reexamination on 3 months after discharge revealing basic restoration of the shape of the pancreas, nearly complete absorption of the peripancreatic fluid collections, and removal of the pancreatic duct stent (right); B: A 31-year old male patient, admitted 48 h after onset, with a TG level of 13.87 mmol/L at admission, and abdominal CT scan showing large exudation around the tail of the pancreas (left), and CT reexamination on 2 months after discharge demonstrating a small amount of fluid collection around the pancreatic tail (right) and the pancreatic duct stent in place (black arrow); C: A 33-year old male patient, admitted 18 h after onset, with a TG level of 59.27 mmol/L at admission, and abdominal CT scan showing changes in the shape of the pancreas and pancreatic necrosis, with massive peripancreatic fluid collections (left), and CT reexamination on 4 months after discharge demonstrating basic restoration of the shape of the pancreas, basically absorption of the peripancreatic fluid collections (right), and the pancreatic duct stent in position (black arrow)

2.4 并发症与其他干预

术后有3例(9%)发生并发症,包括2例全身炎症反应综合征并器官功能衰竭和1例感染性胰腺坏死。其中1例因为严重的呼吸衰竭、电解质紊乱转入ICU进行治疗,通过血浆置换等处理后于次日转入普通病房。1例患者因肾脏衰竭及严重电解质紊乱进行了血浆置换治疗。另外有3例患者因大量腹腔积液进行了腹腔穿刺引流。

2.5 分组分析

根据手术距发病时间将33例患者分为 ≥ 48 h与 < 48 h两组。两组患者在性别、年龄、BMI及入院时CT评分、APACHE II评分、TG水平差异均无统计学意义(均 $P>0.05$),两组数据具有可比性(表2)。分析结果显示,手术距发病时间 < 48 h的患者禁食时间、住院时间明显缩短,住院花费也相对较少(均 $P<0.05$)(表3)。

表2 手术时机不同的两组患者基线资料比较

Table 2 Comparison of the baseline data between the two groups with different operation timings

| 指标 | ≥ 48 h组(n=18) | < 48 h组(n=15) | $t/Z/\chi^2$ | P |
|---|-----------------------|-----------------------|--------------|------|
| 年龄(岁, $\bar{x} \pm s$) | 36.39 \pm 7.33 | 38.67 \pm 12.11 | 0.66 | 0.51 |
| 性别[n(%)] | | | | |
| 男 | 9(50.0) | 6(40.0) | 0.33 | 0.56 |
| 女 | 9(50.0) | 9(60.0) | | |
| BMI(kg/m ² , $\bar{x} \pm s$) | 26.67 \pm 4.18 | 25.98 \pm 3.53 | -0.51 | 0.62 |
| APACHE II评分[分,M(IQR)] | 8.00(3.75~9.50) | 8.00(2.00~9.00) | -0.44 | 0.66 |
| Balthazar CT评分(分, $\bar{x} \pm s$) | 6.76 \pm 1.85 | 6.00 \pm 1.71 | -1.12 | 0.25 |
| TG水平(mmol/L, $\bar{x} \pm s$) | 22.07(11.85~45.53) | 19.30(11.85~35.24) | -0.29 | 0.77 |
| 白细胞($10^9/L$, $\bar{x} \pm s$) | 14.20 \pm 6.67 | 12.20 \pm 4.66 | 0.83 | 0.41 |
| 淀粉酶[U/L,M(IQR)] | 345.70(197.20~507.73) | 461.15(251.45~626.50) | -0.76 | 0.45 |

表3 手术时机不同的两组患者APACHE II评分及禁食、住院时间比较

Table 3 Comparison of APACHE II scores and lengths of fasting time and hospital stay between the two groups with different operation timings

| 指标 | ≥ 48 h组(n=18) | < 48 h组(n=15) | t/Z | P |
|---------------------------------------|--------------------------------|--------------------------------|-------|------|
| 治疗48 h APACHE II评分[分,M(IQR)] | 2.00(0~3.25) | 2.00(0~4.00) | -0.17 | 0.87 |
| 禁食时间[d,M(IQR)] | 4.50(2.75~6.25) | 3.00(2.00~3.00) | -2.42 | 0.01 |
| 住院时间[d,M(IQR)] | 6.50(4.75~11.00) | 4.00(3.00~7.00) | -2.36 | 0.01 |
| 治疗48 h TG水平(mmol/L, $\bar{x} \pm s$) | 5.74(3.79~7.50) | 4.80(3.28~7.09) | -0.71 | 0.48 |
| 白细胞($10^9/L$, $\bar{x} \pm s$) | 9.22 \pm 3.93 | 8.22 \pm 2.68 | -0.83 | 0.41 |
| 淀粉酶[U/L,M(IQR)] | 86.55(63.20~117.50) | 150.45(116.77~186.32) | -1.43 | 0.15 |
| 住院花费[元,M(IQR)] | 28 690.25(22 412.15~47 819.90) | 19 320.70(17 361.09~24 546.58) | -2.57 | 0.01 |

3 讨论

HTGP的发病机制尚不明确,目前一些基于动物模型的研究^[14]认为:大量TG水解后产生的游离脂肪酸造成了胰腺的细胞损伤和缺血。游离脂肪酸和乳糜微粒增加的同时也加重了胰腺微循环障碍,导致胰腺内的缺血和坏死^[15]。HTGP的发病机制还可能与氧化应激、炎症介质-细胞因子损伤、细胞信号转导通路有关^[16]。

但是根据Harvey等^[17-18]得出的结论:无论是胆源性胰腺炎、酒精性胰腺炎还是梗阻性胰腺炎,胰管梗阻才是触发其发生的关键事件,因此HTGP

患者可能也存在胰管梗阻。本研究发现约48%的HTGP患者胰管中存在白色絮状物质,中、重度HTGP患者占87%。胰管中存在该物质的患者入院时APACHE II评分以及Balthazar CT评分明显高于其他患者,同时此类患者的入院血糖和治疗48 h后血糖也明显较高,呈现出更长时间的持续高血糖状态。然而持续高血糖可能是胰腺炎早期病情加重的一个危险因素^[19]。那么可以认为:胰管中的白色絮状物质在一定程度上与HTGP患者的病情存在一定联系,其可能阻碍了胰液的排出,诱发或加重了HTGP^[20]。

在这一发现的基础上,本研究在保守治疗的

同时行胰管支架置入治疗,解决了HTGP患者潜在的胰液排出受阻问题。患者于入院后3(2~5)d恢复经口进食,住院时间中位数为5(3~9)d,相比于以往采取保守治疗的研究明显缩短^[21],胰管支架置入治疗相比于单一保守治疗能快速缓解患者腹部症状,加速患者胃肠道恢复从而实现早期经口进食。本组在胰管支架置入后不再使用抑酶药物,对胰液的通畅引流,减弱了酶和底物的反应,消除了胰酶对胰腺损害的危险因素,从而减少了治疗上对胰酶抑制剂的依赖。3例(9%)出现并发症,包括2例全身炎症反应综合征和1例感染性胰腺坏死。本研究中患者发生并发症的几率较低,说明对于重症AP患者,早期的胰管支架置入能解除胰管梗阻,控制病情进展,减少患者局部及全身并发症的发生^[22]。有研究^[8, 23-24]发现31%~44%的急性坏死性胰腺炎患者有胰管破裂。对于这些患者,经十二指肠乳头胰管引流可直接通过破裂的胰管进入坏死的积液腔,从而实现引流而无需额外的有创操作^[25-26]。本研究中部分患者入院时胰腺周围渗出较多,但是通过胰管支架置入治疗后3个月复查发现这些患者胰周积液基本吸收干净,没有形成局部并发症,然而这些患者并没有进行各种类型的穿刺引流,这可能与胰管支架的引流相关。因此胰管支架置入对于胰周渗出的吸收和胰腺形态的改善有一定作用,可以减少患者后期的胰腺局部并发症。根据手术距发病时间是否<48h,将患者分为两组进行比较发现,48h内行胰管支架置入的患者禁食时间明显缩短,因此早期通畅引流胰液在病情转归上具有积极作用,Acosta等^[27]临床研究也证实胰管梗阻的持续时间是决定胰腺病变严重程度的主要因素:阻塞持续时间不超过48h的患者很少出现严重的胰腺病变。相比之下,超过48h的几乎所有梗阻患者都会出现胰腺坏死。本研究中48h内行胰管支架治疗的患者住院天数缩短了38%,住院费用减少了33%。因此在早期就解除梗阻通畅引流胰液,能有效加速患者胃肠道恢复,缩短患者住院时间,减少患者费用。

所有患者均治愈出院,2例(6%)患者发生与ERCP有关的血清淀粉酶升高,考虑为高淀粉酶血症,这一比例低于以往的研究^[28],除此之外并没有严重的手术并发症。因此ERCP下的胰管支架置入治疗HTGP是一种相对安全的治疗方式。

目前的HTGP治疗还是以降脂为主^[29],但本研

究发现HTGP患者具有潜在胰管梗阻的可能。通过行ERCP术清理胰管中的蛋白栓再放置胰管支架达到解除胰管梗阻通畅引流胰液的目的,以上结果显示:相比于单一的保守治疗,这样的联合治疗方式能更快缓解患者症状,缩短住院时间,且并发症较少。这一特点在48h内就进行胰管支架置入的患者中表现的效果更为明显。本研究中中度重症和重症HTGP患者胰管蛋白栓的发生率更高,那么病情越重存在胰管梗阻的可能性越大并且梗阻程度更严重。因此这种治疗方式可能更适合中度重症和重症患者的治疗。

本研究属于单中心回顾研究,由于样本量较少且缺乏对照,因此存在一定局限性。但本研究证明了HTGP患者存在胰管梗阻并提出了胰管支架置入治疗的新方式。今后仍需要更加严谨的大样本随机对照研究,为胰管支架置入治疗HTGP提供更有力的证据。

综上所述,胰管支架置入治疗HTGP是一种安全有效的治疗新策略,早期的胰管支架置入能有效改善患者病情。

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本刊对来稿中统计学处理的有关要求

1. 统计研究设计: 应交代统计研究设计的名称和主要做法。如调查设计 (分为前瞻性、回顾性或横断面调查研究); 实验设计 (应交代具体的设计类型, 如自身配对设计、成组设计、交叉设计、正交设计等); 临床试验设计 (应交代属于第几期临床试验, 采用了何种盲法措施等)。主要做法应围绕4个基本原则 (随机、对照、重复、均衡) 概要说明, 尤其要交代如何控制重要非试验因素的干扰和影响。

2. 资料的表达与描述: 用 $\bar{x} \pm s$ 表达近似服从正态分布的定量资料, 用 $M (QR)$ 表达呈偏态分布的定量资料; 用统计表时, 要合理安排纵横标目, 并将数据的含义表达清楚; 用统计图时, 所用统计图的类型应与资料性质相匹配, 并使数轴上刻度值的标法符合数学原则; 用相对数时, 分母不宜小于20, 要注意区分百分率与百分比。

3. 统计分析方法的选择: 对于定量资料, 应根据所采用的设计类型、资料所具备的条件和分析目的, 选用合适的统计分析方法, 不应盲目套用 t 检验和单因素方差分析; 对于定性资料, 应根据所采用的设计类型、定性变量的性质和频数所具备条件以分析目的, 选用合适的统计分析方法, 不应盲目套用 χ^2 检验。对于回归分析, 应结合专业知识和散布图, 选用合适的回归类型, 不应盲目套用简单直线回归分析, 对具有重复实验数据的回归分析资料, 不应简单化处理; 对于多因素、多指标资料, 要在一元分析的基础上, 尽可能运用多元统计分析方法, 以便对因素之间的交互作用和多指标之间的内在联系进行全面、合理的解释和评价。

4. 统计结果的解释和表达: 当 $P < 0.05$ (或 $P < 0.01$) 时, 应说明对比组之间的差异有统计学意义, 而不应说对比组之间具有显著性 (或非常显著性) 的差别; 应写明所用统计分析方法的具体名称 (如: 成组设计资料的 t 检验、两因素析因设计资料的方差分析、多个均数之间两两比较的 q 检验等), 统计量的具体值 (如 $t=3.45$, $\chi^2=4.68$, $F=6.79$ 等) 应可能给出具体的 P 值 (如 $P=0.0238$); 当涉及到总体参数 (如总体均数、总体率等) 时, 在给出显著性检验结果的同时, 再给出95%置信区间。

中国普通外科杂志编辑部