

预防ERCP术后胰腺炎：不同操作技术的进展

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收稿日期: 2022年10月9日; 录用日期: 2022年11月8日; 发布日期: 2022年11月15日

摘要

内镜逆行胰胆管造影是治疗胰胆管疾病的重要技术。然而, 治疗性ERCP仍与各种并发症有关, 如ERCP术后胰腺炎、胆管炎、出血、胆囊炎和穿孔。此外, 为了安全、成功地进行ERCP手术, 最初选择性的胆管或胰腺插管是必要的, 以减少潜在的并发症。选择性胆道插管仍有5%至10%的患者失败, 尽管有多种内镜技术可用。为了克服插管困难, 在不增加并发症发生率的情况下, 设计了各种插管技术和设备。这篇文章就不同操作技术对于术后并发症的发生进行全面概述。

关键词

内镜逆行胰胆管造影, ERCP术后胰腺炎, 导丝引导插管技术

Prevention of Post-ERCP Pancreatitis: Progress in Different Procedural Techniques

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Received: Oct. 9th, 2022; accepted: Nov. 8th, 2022; published: Nov. 15th, 2022

Abstract

Endoscopic retrograde cholangiopancreatography (ERCP) is an important technique for the treatment of pancreaticobiliary diseases. However, therapeutic ERCP is still associated with various

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complications, such as post-ERCP pancreatitis, cholangitis, hemorrhage, cholecystitis, and perforation. In addition, for a safe and successful ERCP procedure, initial selective bile duct or pancreatic cannulation is necessary to reduce potential complications. Selective biliary cannulation still fails in 5% to 10% of patients despite the availability of multiple endoscopic techniques. To overcome the difficulty of intubation, a variety of intubation techniques and devices have been designed without increasing the incidence of complications. This article provides a comprehensive overview of different surgical techniques for the occurrence of postoperative complications.

Keywords

Endoscopic Retrograde Cholangiopancreatography, Post-ERCP Pancreatitis, Wire-Guided Cannulation

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1. 前言

自上世纪以来, 内镜逆行胰胆管造影术(ERCP)是内窥镜领域的一项技术创新。ERCP 是内镜技术中较为复杂及全面的综合治疗方式, 是临床上用于诊断和治疗胰腺和胆道系统疾病的最常见和最专业的内窥镜技术[1]-[6]。尽管 ERCP 在十二指肠和胰胆管疾病的治疗和诊断方面由于创伤小、操作简单、恢复时间短而优于腹腔镜及胆道镜手术[3] [4], 但诊断和治疗 ERCP 可引起各种并发症, 如胰腺炎、胆管炎、穿孔、出血(尤其是括约肌切开术后出血)、胆囊炎、心肺抑制、高淀粉酶血症、缺氧、出血、败血症、药物不良反应和死亡[7] [8] [9] [10] [11]。ERCP 术后胰腺炎(PEP)是 ERCP 最常见的并发症[7] [12] [13] [14], 在涉及 10,000 多个手术的 3 项研究中, PEP 的发生率分别为 3.5%、4.2% 和 9.7% [15] [16] [17]。化学、机械、酶和热原因也被认为是 PEP 的病理生理学原因[18]。

2. PEP 的危险因素

相关研究中发现, 与 PEP 发生相关的患者因素有显著意义, 包括年轻[19] [20]、女性[19] [20]、疑似 Oddi 功能障碍括约肌(SOD) [21]、既往 PEP 病史[20]和复发性胰腺炎[20] [22]。尽管在研究中发现女性对 PEP 具有高风险, 但很难区分 SOD 的影响, 尤其是胆囊切除术后腹痛的女性[23]。相反, 慢性胰腺炎患者中发生 PEP 的可能性较小[1] [24], 表明对 PEP 刺激的部分敏感性丧失[23], 可能是因为萎缩和酶活性降低。ERCP 伴括约肌切开术病史的患者也被认为可以降低发生 PEP 的风险, 因为之前的括约肌切除术主要是将总胆汁从主胰管中分离出来, 因此减少了胰管插管或注射的可能性, 并使插管相对简单有效[25]。插管困难可引起乳头状损伤, 从而增加 PEP 的发生率[26] [27], 研究发现, 在少于 5 次插管的患者中发生胰腺炎的比例为 3%, 6~15 次插管后发生胰腺炎的比例为 7%, 大于 15 次插管的患者中发生胰腺炎的比例为 13%, 程序相关因素也与 PEP 风险升高有关。胰管注射造影剂是一个主要的危险因素, 研究发现注射次数可能与风险相关[28] [29]。

3. ERCP 操作技术的进展

3.1. 导丝引导插管技术(WGC)

在内镜逆行胰胆管造影术(ERCP)或介入性内镜超声检查(endoscopic ultrasonography, EUS)中, 导丝是

一个有用且必不可少的附件。导丝的选择取决于手术类型或内窥镜医生的偏好。最近的报告表明, 与使用对比剂注射进入胆管的传统对比剂辅助插管(CC)相比, 使用 WGC 技术可以显著提高胆管插管的成功率, 降低 PEP 的频率或严重程度。他们还表示, 尽早或初步尝试应用 WGC 技术, 而不仅仅是延迟或支持性使用, 可以减少程序时间[30] [31]。

CC 技术仍然是最常用的初始插管技术, 然而, 当 CC 技术失败时, WGC 可以作为一种有用的替代技术实现插管, 作为一种主要的选择性插管方法, WGC 可以减少因长时间插管操作或胰腺导管内注射造影剂(PD)而引起的并发症。理论上, 借助导丝进入胆管可以减少对 Vater 壶腹(AV)和 PD 的直接接触损伤, 并避免与对比剂注射或乳头水肿相关的静水压增加; 因此, 减少了 PEP 的发展[32] [33]。因此, 欧洲胃肠内窥镜学会(ESGE)最近的临床指南建议使用 WGC 方法进行初级胆管插管, 因为 WGC 降低了 PEP 风险。Kobayashi 等人[34]和 Lee 等人[35]比较了 WGC 程序和传统插管(CC)程序在预防 PEP 方面的效果。他们的发现不一致。虽然 Lee 等人[35]发现 WGC 可能有助于预防 PEP, 但 Kobayashi 等人[34]认为 WGC 技术并没有降低 PEP 的风险。在单盲、前瞻性、多中心 RCT 中, Bassan 等人[36]比较了 0.025 英寸和 0.035 英寸导丝在预防 ERCP 不良事件方面的作用。实验纳入了 710 名乳头健康且具有常规解剖结构的患者被随机分为应用 0.025 英寸或 0.035 英寸导丝, 这些组的 PEP 发生率差异不显著。

3.2. 双导丝插管技术(DGC)

自从 Dumonceau 等人 [16] 首次描述 DGC 以来, 它在克服胆道插管困难方面表现出了良好的前景, 并被广泛用于反复意外 PD 插管的病例中。从技术上讲, DGC 可能是频繁非故意 PD 插管的有效替代方法。在 DGC 中, 当先前插入的 PD 导线就位时, 尝试在 CBD 方向插入另一根导线。在 PD 中放置导丝可能有助于选择性胆道进入, 使用另一个括约肌或与第一根导丝位于同一工作通道中的导管。将导丝深入主 PD 可提供多种益处, 例如将 AV 提升至工作通道, 打开狭窄的乳头状孔口, 或潜在地将导丝重复插入 PD [21]。

与 CC 方法相比, DGC 被认为是克服胆道插管困难的有效方法。在 Xu Wang 等人的研究中, 在接受双导丝技术(DGC)的困难插管的患者中, PEP 发生率对比传统辅助插管有所降低(7.3%比 18.2%, $P = 0.026$) [37]。Edson Guzmán-Calderón 等人的一项荟萃分析中经胰预切乳头状切开术(TPS)与 DGC 两组插管成功率相似(TPS: 93.3%, DGW-T: 79.4%, $RR = 1.09$, 95%CI [0.90~1.32])。在汇总的技术成功分析中未发现异质性, TPS 和 DGW 是两种对插管困难患者有用的技术。而 TPS 技术的患者的 PEP 率低于接受 DGW-T 的患者(TPS: 8.9% vs DGW-T: 22.2%, $P = 0.020$, $RR = 0.47$, 95%CI [0.25~0.89]) [38]。

3.3. 针刀括约肌切开术(NKS)

针刀括约肌切开术(NKS)是一种较为先进的治疗措施, 用于在传统深插管不足的情况下促进插管 [39]。因此, NKS 与 PEP 有关, 因为它通常是多次重复失败插管尝试后的最后手段[8]。Swan 等人[39]进行了一项前瞻性、单中心、单盲的 RCT, 以评估在困难插管期间早期应用 NKS 预防 PEP 的疗效。73 例乳头完整的患者接受了 ERCP, 但胆管插管困难, 他们被随机分为 NKS 组或持续标准插管组。这些组之间的 PEP 发生率差异不显著, 这表明在困难插管期间早期应用 NKS 对预防 PEP 的发生没有效果。

3.4. 胰腺支架放置(PSP)

相关研究表明, 胰腺括约肌上的胰腺支架放置(PSP)可能会维持胰腺分泌物的流动, 而这种流动可能会因乳头水肿而中断, 从而有助于减少 PEP [9]。Sofuni 等人[40]在日本的 37 个内窥镜单位进行了这项研究, 参与研究的患者人数最多。他们进行了一项前瞻性、多中心和对照的随机对照试验, 通过分析 426

例 ERCP 患者的数据, 研究临时型 PSP 预防 PEP 的疗效。213 例患者接受支架治疗, 另有 213 例未接受支架治疗。PEP 发生率分别为 7.9% 和 15.2% ($P = 0.021$)。研究结论是 PSP 降低了 PEP 的发病率。Fujisawa 等人[41]比较了 3 cm 和 5 cm 胰腺支架对预防 PEP 的影响。240 名患者按 1:1 的比例随机分组, 并使用 5-Fr 无翼 3 或 5-cm 胰腺支架进行预防性置入。经方案分析表明, 3 cm 支架在预防 PEP 方面优于 5 cm 支架。

4. 操作相关的并发症

导丝相关并发症

除 PEP 外, 导丝相关穿孔可能是一个重要的并发症。虽然导丝尖端光滑且亲水, 但可能会穿孔。导丝相关穿孔的常见危险因素包括 Billroth II 胃大部切除术、内镜下括约肌切开术、括约肌预切开术、手术时间长、壶腹周围憩室、胆管狭窄、SOD、老年和缺乏经验[42]。就所用仪器而言, 穿孔也可能与导线本身的质地和尖端的灵活性有关。在存在这些危险因素的情况下, 穿孔通常发生在 AV 或近端胆道梗阻周围的局部。当胆管插管困难且术者或助手迫使导丝进入胆管时, 导丝诱导的穿孔可能由于 AV 水肿或壶腹周围病变的损伤和炎症而发生[42]。此外, 术者可能无法检测到导丝产生的微穿孔。

这类微穿孔的患者通常在禁食和广谱抗生素等保守治疗后 24~48 小时内康复[42] [43]。然而, 如果在早期未发现穿孔, 患者可能会出现腹痛或发热。在插入引流管、导管或扩张器时, 微穿孔可能会在不知不觉中受到进一步的损伤, 使其扩大到需要手术的程度。

5. 结语

PEP 仍然是 ERCP 的重要并发症, 其病理生理学尚不清楚, 被认为是多因素的。临床试验分析了预防 PEP 的不同方法。研究 PEP 预防的研究可分为: 1) 评估患者相关风险因素; 2) 药物预防; 3) 预防的程序技术。根据目前的文献, 在 ERCP 期间, 需要应用非甾体与插管技术结合的技术而不是单一技术来促进胆道或胰腺通路, 尤其是对于高危及困难插管的患者而不会增加并发症。进一步的研究应该侧重于进行荟萃分析, 以获得集合效应, 克服异质性、不精确性和发表偏倚的风险。

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