

# 术后胃肠功能障碍的改善策略：从传统管理到最新研究进展

冯 啸

兴化市人民医院胃肠外科, 江苏 兴化

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## 摘 要

术后胃肠功能障碍(POGD)是腹部手术后常见的肠道运动和分泌功能恢复迟缓症状,主要表现为恶心、呕吐、腹胀和排气或排便的延迟。POGD不仅严重影响患者的康复和生活质量,还显著增加医疗资源的使用。胃肠功能障碍的发生受到手术技术、麻醉方法、疼痛控制及营养支持等多种因素的影响。随着POGD管理策略的发展,包括药物治疗、营养支持方案、微生物群调整以及加速康复外科(ERAS)措施的应用,已显著降低了POGD的发生率,并加速了患者的康复过程。本文综述了当前的POGD管理策略,探讨了治疗中的挑战,并为临床医生提供一个全面的治疗框架,以期望进一步提升术后患者的治疗效果。

## 关键词

术后胃肠功能障碍, 腹部手术, 加速康复外科, 营养支持, 微生物群调节

# Improvement Strategies for Postoperative Gastrointestinal Dysfunction: From Traditional Management to the Latest Research Developments

Xiao Feng

Department of Gastrointestinal Surgery, Xinghua People's Hospital, Xinghua Jiangsu

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## Abstract

Postoperative gastrointestinal dysfunction (POGD) is a common condition following abdominal

surgery, characterized by delayed recovery of intestinal motility and secretory functions, leading to symptoms such as nausea, vomiting, abdominal distension, and delayed gas or bowel movements. POGD not only severely affects patients' recovery and quality of life but also significantly increases the use of medical resources. The occurrence of gastrointestinal dysfunction is influenced by various factors, including surgical techniques, anesthesia methods, pain control, and nutritional support. With the development of POGD management strategies, including pharmacotherapy, nutritional support plans, microbiota modulation, and the application of Enhanced Recovery after Surgery (ERAS) protocols, there has been a notable decrease in the incidence of POGD and an acceleration in the recovery process of patients. This article reviews current POGD management strategies, discusses challenges in treatment, and provides a comprehensive treatment framework for clinicians, aiming to further improve postoperative outcomes for patients.

## Keywords

POGD, Abdominal Surgery, ERAS, Nutritional Support, Microbiome Modulation

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## 1. 引言

术后胃肠功能障碍(Postoperative Gastrointestinal Dysfunction, POGD)是腹部手术后常见的并发症,患者可能遭受恶心、呕吐、腹胀以及排气或大便不畅等不适,这会延长住院时间并提高并发症风险[1]。POGD的常见表现包括消化道动力性障碍和吸收不良,而其发生的影响因素则十分广泛,包括患者自身的病理状态、手术类型和范围、麻醉方法、术中液体管理、术后疼痛控制及营养支持等[2]。这些因素共同作用于患者的肠道功能,导致POGD的发生和发展。了解这些影响因素对于制定有效的预防和治疗策略至关重要。本综述回顾了现有的改善措施,包括术前准备、术中管理和术后恢复策略,并探讨了新兴治疗方法,如新药、营养方案和微生物群调节,以及加速康复外科(Enhanced Recovery After Surgery, ERAS)协议的实施。目标在于为医生构建一个全方位的治疗体系,明确当前面临的挑战并指出未来研究的方向,旨在降低胃肠功能障碍的发生频率,提升治疗成效,加快患者恢复过程。

## 2. POGD 的流行病学和病理生理学

### 2.1. POGD 的流行病学

术后胃肠功能障碍是一个备受关注且正处于积极研究探索阶段的领域。研究表明有 20%至 30%的患者在接受腹部手术后会遭遇不同程度的胃肠功能障碍[3]。在进行大型腹部手术,比如结直肠、胃或胰腺手术后,这一比例可能更加显著。研究发现,结直肠手术后,术后胃肠功能障碍的发生率可能达到 50% [3]。

### 2.2. POGD 发生的病理生理和分子机制

POGD 的病理生理机制涉及多方面因素。手术引发的应激反应导致应激激素和炎症介质的释放,如儿茶酚胺、皮质醇和细胞因子等,这些物质可直接或间接影响胃肠道的运动功能[4] [5]。其次,手术中使用的麻醉药物,特别是阿片类药物,能显著抑制胃肠道蠕动,进一步加剧 POGD 的风险[6]。此外,手术对胃肠道的直接干预,如切除或搭桥等操作,可能损害胃肠道的肌肉和神经系统,影响其正常功能[7]。

最后,手术过程中可能发生的大量失血、液体和电解质的不平衡也对胃肠道功能造成负面影响[8]。这些因素相互作用,综合导致了POGD的发生,对患者的术后恢复构成重大挑战。因此,深入理解POGD的病理生理机制对于制定有效的预防和治疗策略具有重要意义。

### 3. 传统POGD管理策略

传统的POGD管理策略主要集中在对症治疗和支持性护理上。这包括采用药物治疗以缓解症状,如使用抗胃酸药物、促胃肠动力药物和抗呕吐药物等。此外,保持良好的水分和电解质平衡,通过静脉补液和电解质替代来纠正可能的失衡,也是传统管理中的重要组成部分。在营养支持方面,根据患者的具体情况,可能会暂时采用肠外营养,直到患者能够恢复肠内营养为止。疼痛管理也是关键,通常通过使用非阿片类药物来减少对胃肠功能的负面影响。尽管这些传统策略在一定程度上能够缓解POGD的症状和加速恢复,但它们主要是反应性的,缺乏预防性的措施,因此在临床实践中逐渐向更为综合和预防性的管理模式转变。

## 4. POGD领域最新研究进展

### 4.1. 肠内菌群变化对POGD的影响

近期研究强调了肠道菌群在术后胃肠功能障碍中的重要作用。Xu等人研究发现,肠道菌群的变化会影响各种术后并发症,包括胃肠问题和认知功能障碍[9]。研究表明,肠道微生物组的改变可能导致多器官功能障碍综合征[10][11]。此外,肠道菌群在胃肠手术后的恢复过程中也被认为有重要作用,改变的菌群有助于术后并发症的发生。

Schmitt等人研究发现,肠道菌群的组成与术后并发症患者的长期变化有关,这表明手术对肠道微生物组的影响是持久的[12]。此外,使用益生菌通过调节肠道菌群组成,已显示出影响术后结果的潜力[13]。研究还表明,肠道菌群的变化与术后谵妄等状况有关[14],凸显了术后肠道健康与认知功能之间的复杂关系。肠道微生物在胃肠手术后的恢复过程中发挥着至关重要的作用。通过研究肠道菌群变化如何影响手术后的恢复进程及并发症,开发针对肠道菌群的干预措施,能够提高胃肠疾病患者的康复效果并减少术后并发症的发生风险。

### 4.2. 加速康复外科(ERAS)协议下的POGD管理

术后快速康复方案通过在围手术期整合循证实践,显著影响了术后胃肠功能障碍的管理。这些方案强调采用多模式方法来增强患者的康复和预后[15]。在术前阶段,ERAS指南侧重于优化患者的体液平衡、营养状况和早期口服摄入[16]。此外,ERAS方案已经从传统的术前肠道准备和禁食做法转变为更以患者为中心的方法[17]。ERAS协会的建议强调减少手术应激和维持术后生理功能的重要性,以促进早期活动[18]。在手术期间,ERAS协议强调以目标导向的液体治疗来优化血液动力状态和液体平衡[19]。快速通道手术和ERAS项目的使用已被证明可以通过最小化术后压力和加速恢复来改善患者结果[20]。此外,ERAS协议还主张采用现代液体管理策略,以确保最佳的围手术期护理[21]。在术后期间,ERAS协议促进早期活动、肠内营养和有效的疼痛管理,以促进更快的恢复[22]。研究表明,实施ERAS可以减少术后并发症,缩短住院时间,并提高患者满意度[23]。通过整合ERAS原则,能够促进患者术后恢复,降低发病率,并在多个外科领域改进患者的术后康复成果[24]。

总的来说,ERAS协议通过提供贯穿整个围手术期的全面框架,彻底改变了术后胃肠功能障碍的管理。通过整合早期康复、目标导向液体疗法和以患者为中心的护理等基于证据的实践,ERAS协议已经证明了提高结果和增强接受胃肠手术患者整体手术体验的能力。

### 4.3. 新兴药物治疗和干预方法

手术后胃肠功能障碍管理的最新进展主要集中在各种治疗方法上, 这些方法得到了当前研究文献的支持。针灸被研究用于潜在受益于结肠癌患者手术后胃肠功能障碍的治疗[25]。传统中医疗法也已经证明在减轻术后胃肠症状方面具有有效性, 而且没有不良影响[26]。此外, 提出了将精细护理与中西医结合的方法, 用于管理接受肿瘤切除手术的个体的手术后胃肠功能障碍[27]。

在药理干预领域, 像甲基纳曲酮和阿维莫潘这样的新药已显示出在管理阿片类药物引起的肠功能障碍和预防术后肠梗阻方面的潜力[28]。纳布啡尼已被研究其对于腹腔镜妇科恶性肿瘤手术后胃肠功能障碍的影响[29]。这些药物针对导致术后胃肠功能障碍的各种因素, 包括交感神经过度活跃、肠道操纵、电解质失衡和胃肠激素的紊乱。非药物干预措施也已经被探讨过。例如, 经皮电刺激穴位治疗疗法已显示出在预防术后胃肠功能障碍方面具有潜力[30]。此外, 早期开始口服、使用泻药和咀嚼口香糖等简单且具有成本效益的干预措施已被发现对减少术后胃肠功能障碍有效[31]。

总的来说, 目前处理术后胃肠功能障碍的方法涉及到一个综合策略, 结合了药物治疗、非药物治疗和传统疗法。这种整体方法旨在改善患者的治疗效果, 提高手术后生活质量。

## 5. 挑战与未来研究方向

管理术后胃肠功能在临床实践中面临重大挑战。传统上, 接受胃肠手术的患者会被实行禁食, 通过鼻胃管进行胃减压, 直到肠功能恢复[32]。然而, 最近的研究强调了术后早期口服进食和采取措施如静脉注射利多卡因来加速术后胃肠功能恢复的重要性[33]。术后肠梗阻是一种常见并发症, 其特征是暂时性肠蠕动功能障碍, 对恢复产生重大影响[34]。

个性化的治疗策略在管理术后胃肠功能方面至关重要。研究表明, 早期活动、及时拔除引流管以及充足的社会支持等因素可以缩短康复时间并改善胃肠功能[35]。针灸、益生菌和共生菌作为非传统的医疗干预措施, 在胃肠癌患者术后康复中显示出显著的潜力[36]。针灸作为一种传统中医治疗方式, 可以通过调节体内的气血流通, 减轻术后疼痛, 缓解化疗带来的副作用如恶心和呕吐。此外, 针灸还可能对患者的整体免疫功能有积极影响, 从而加速康复进程。益生菌和共生菌则通过调整肠道微生物群落平衡, 提高肠道健康, 间接支持免疫系统的恢复和功能提升。益生菌能够抑制有害菌的生长, 增强肠道屏障功能, 减少术后感染的风险, 促进营养的吸收。共生菌则在此基础上, 通过提供益生元(即益生菌的食物来源)进一步增强益生菌的效果, 帮助维持肠道微生物的稳定状态, 从而有助于患者更快恢复健康。

未来的研究方向应该集中在创新的治疗方法上。针灸已经被认为是减少术后肠梗阻持续时间、增强癌症患者肠道功能的潜在治疗方法[37]。Lu 等人研究发现, 在手术中使用右美托咪定在改善术后胃肠功能方面具有显著效果[38]。另有研究显示, 针灸可减轻胸外科手术患者术后的胃肠道不良反应, 这突显了根据手术类型和患者特征制定个性化干预措施的重要性[39]。

针灸、益生菌和早期肠内喂养等治疗策略正在被探讨, 以解决术后胃肠功能障碍的问题[40]。此外, 预防性使用质子泵抑制剂被认为在预防高危患者术后胃肠出血中至关重要[41]。这些干预措施凸显了朝着个性化和多学科方法优化术后胃肠功能的转变。总的来说, 管理术后胃肠功能需要综合考虑个体患者的需求, 并采用传统和创新的治疗策略相结合的方法。未来的研究应继续探索新的干预措施, 以提高接受胃肠手术患者的康复和生活质量。

## 6. 小结

本文综合探讨了术后胃肠功能障碍的管理, 强调了从传统到创新方法的全面进展。研究显示, 手术技术、麻醉、疼痛管理和营养支持等多种因素对 POGD 有显著影响。通过药物治疗、营养方案、调整肠

道微生物群及实施 ERAS 方案, 已有效降低 POGD 发生率并加速患者恢复。肠道微生物群的研究揭示了其在 POGD 中的关键作用, 可能影响术后并发症和认知功能。新兴治疗和干预方法, 如针灸和中医, 提供了新的管理途径。个性化治疗策略对快速康复和胃肠功能改善至关重要。未来研究应探索新干预措施和治疗手段, 以进一步提升患者康复效果和生活质量。

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