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· 文献综述 ·

## 胰十二指肠切除术围术期规范化开展加速康复外科的几点争议

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### 摘要

胰十二指肠切除术(PD)是普通外科最为复杂的手术之一,手术吻合口多,出现胰瘘、胆瘘、腹腔感染等并发症的风险大,围术期管理困难。近年提倡并应用的精准、微创、损伤控制的现代外科理念为加速康复外科(ERAS)的施行奠定了基础,尽管国际上已发布纲要性的共识指南,国内对于PD围术期管理中实施ERAS仍存在不少争议。为了在PD围术期规范化开展ERAS,笔者就术前禁食禁饮时间、术后鼻胃管和腹腔引流管拔除时机、术后生长抑素使用与否等几个关键的争议问题进行讨论和阐释。

### 关键词

胰十二指肠切除术; 围手术期医护; 加速康复外科; 综述文献  
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## Controversies on carrying out standardized enhanced recovery after surgery program in perioperative management of pancreaticoduodenectomy

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### Abstract

Pancreaticoduodenectomy (PD) is one of the most complex procedures in the field of general surgery, which involves multiple anastomoses and has a high risk of complications such as pancreatic fistula, biliary fistula and abdominal infection, leading to a difficult perioperative management. The currently advocated and implemented surgical concepts of precision, minimal invasion and damage control have laid the foundation for the employment of enhanced recovery after surgery (ERAS). Although the international directive consensus and guidelines have been issued, there are still controversies concerning the use of ERAS program in perioperative management of PD in China. For carrying out the standardized ERAS protocols in perioperative management of PD, the authors discuss and classify several highly controversial subjects such as preoperative fasting time for food and water, timing for nasogastric tube and peritoneal drainage tube removal, and administration of postoperative somatostatin.

### Key words

Pancreaticoduodenectomy; Perioperative Care; Enhanced Recovery After Surgery; Review  
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胰腺手术特别是胰十二指肠切除术 (pancreaticoduodenectomy, PD) 是治疗胰腺疾病的主要手段, 由于胰腺解剖位置的特殊性及组织生理学特性, PD术后患者内环境受到较大扰动, 出现水钠潴留、术后应激状态、糖代谢紊乱、负氮代谢平衡等, 围术期病死率及并发症发生率仍然较高。随着医疗技术的进步, 近40年内PD的病死率得到显著的改善, 1970年代PD的围术期病死率高达25%, 而目前在高流量的胰腺中心病死率通常 $<2\%$ <sup>[1]</sup>。但总体并发症率仍超过40%, 主要以胰瘘、胃排空障碍为主, 延长患者的康复时间, 增加住院费用, 甚至危及生命<sup>[1]</sup>。如何减少PD术后并发症, 加快患者术后康复成为胰腺外科领域亟待解决的关键问题。

加速康复外科 (enhanced recovery after surgery, ERAS) 理念是在多学科合作的基础上, 基于循证医学依据提出的有关围手术期处理的一系列优化干预措施, 降低患者的创伤应激反应, 最大程度地减轻患者机能损伤和促进其恢复, 达到快速康复的目的<sup>[2]</sup>。自其理念提出后, 在结直肠外科、骨科、妇产科等领域得到快速发展及广泛接受<sup>[3-4]</sup>。国际上已发布多个腹部外科方向的ERAS指南或专家共识, 覆盖择期结直肠手术、直肠或盆腔手术、胃切除术、减重手术、膀胱切除术等<sup>[5-9]</sup>, 然而胰腺手术围术期ERAS项目的制定比较滞后, 大部分现存的研究使用基于自己中心的加速康复方案, 并不是所有研究均分享详细的项目组成。为此, 欧洲临床营养与代谢学会 (European Society for Clinical Nutrition and Metabolism, ESPEN) 及国际外科营养与代谢协会 (International Association for Surgical Metabolism and Nutrition, IASMEN) 于2012年通过对已发表文献进行分析和总结, 以循证医学为依据发表针对PD围术期处理的指南, 以期促进手术患者术后康复<sup>[10]</sup>。但是, 指南并没有结合我国人群的临床证据报道, 作为纲要性的指南也没有具体的临床应对措施。而国内现存的指南共识也未针对PD术式进行专门地论述<sup>[11]</sup>。本文总结现有文献中关于ERAS应用于PD围术期的现状, 并着重对争议较大的几点问题做详细阐释。

## 1 PD 围术期开展 ERAS 的几点争议

### 1.1 术前禁食禁水时间

传统围术期处理方案提倡术前禁食12 h、禁水

6 h, 认为可降低术后吸入性肺炎的发生率, 但缺乏相应证据。国内争议的焦点主要集中在术前禁食禁饮时间上, 较多医院仍采取相对保守的禁食禁水策略, 使ERAS在胰腺外科的推广遭遇困难。

有研究<sup>[12]</sup>表明, 禁食过夜可能导致胰岛素抵抗和术后不适。美国麻醉医师协会最新的指南建议麻醉诱导前6 h禁食、2 h禁饮。麻醉前2 h内饮用适量的富含碳水化合物的饮料已经被证实具有减轻饥饿、焦虑和口渴的感觉、减弱术后胰岛素抵抗、减少术后氮和蛋白质损失的效果<sup>[13-15]</sup>。一项包含部分PD患者的随机对照研究结果显示术前进食高碳水化合物的饮料有助于维持肌力, 加速患者康复<sup>[16]</sup>。ERAS协会对于PD围术期处理的指南推荐在术前2 h饮用清液并不会增加残余胃容量, 对于禁食固体食物仍推荐术前6 h起。

笔者中心对于将行PD的患者如无胃肠动力障碍, 常规嘱咐在术前1 d睡觉前饮用高碳水化合物饮料2次, 每次不超过200 mL; 对于首台手术的患者手术当天早上6点前予高碳水化合物饮料200 mL, 对于接台手术患者则根据大致手术开始时间前2 h饮用, 对于禁食固体食物仍推荐术前6 h起。术前已明确存在十二指肠梗阻的患者则予禁食禁水、胃肠减压处理, 并于术前3 d起高渗盐水洗胃以减轻肠道水肿。在ERAS实施过程中, 并无误吸、吸入性肺炎等相关并发症发生, 有效避免了患者等待手术时口渴、饥饿和焦虑的感觉。

### 1.2 术后生长抑素的应用

生长抑素及它的合成类似物 (如奥曲肽、帕瑞肽) 有减少内脏血流量和减少胰液分泌的作用<sup>[17]</sup>。应用于胰腺术后的基本原理是能通过减少胰腺外分泌的量来降低胰腺吻合口瘘的风险。然而PD术后应用生长抑素来降低术后胰瘘 (postoperative pancreatic fistula, POPF) 的发生率还存在争议。国际上先前发表的随机对照研究结果有认为有效的<sup>[17-18]</sup>, 也有认为无效的<sup>[19-20]</sup>。2010年发表的1篇Meta分析<sup>[21]</sup>包含17个研究共2 143例患者, 其中1 457例患者行PD, 686例患者行胰体尾切除或其他胰腺切除术式。文章结论提示使用生长抑素可以降低术后并发症率以及总体的POPF率, 然而并没能降低术后住院时间、围术期病死率及严重的POPF发生率 (ISGPF定义中的B级、C级)。对于PD患者的亚组分析也提示生长抑素对于并发症无显著性的效果。不同的是, 2014年, Allen等<sup>[22]</sup>报道其单中心的一项随机双盲

对照研究的结果,共纳入220例PD患者及80例胰腺远端切除患者,研究显示术前及术后持续应用帕瑞肽能显著降低胰腺术后胰瘘及腹腔脓肿的发生率(9% vs. 21%,  $P=0.006$ )。

笔者中心对于无合并胰瘘高危因素、吻合满意、一般状况较好的患者不常规应用生长抑素,而具有胰瘘高危因素(胰腺质地软、胰管细小)的PD患者使用生长抑素至拔除第1根腹腔引流管,若证实出现术后胰瘘的患者则应用至临床症状改善为止。

### 1.3 鼻胃管拔除时机

通常鼻胃管被认为有阻止肺部并发症发生、降低肠梗阻的程度、减少吻合口裂开及瘘的风险等功能,但有研究<sup>[23-24]</sup>结果显示,长期留置胃管患者发热、肺不张、肺炎、胃食管反流等并发症发生率较高,而不留置胃管患者胃肠功能恢复较快。尽管探讨胰腺手术后放置鼻胃管作用的文章较少,在其它腹部外科领域尤其是胃肠外科具有丰富的高质量循证医学证据存在。2008年,一项挪威的针对上消化道及肝胆胰手术患者术后不常规放置鼻胃管的大型RCT研究<sup>[25]</sup>发现,术后早期经口禁食安全、可行,并不增加并发症发生率及术后住院时间。2010年,Nelson等<sup>[26]</sup>发表的1篇Meta分析共纳入37项临床研究共5 711例患者,其中2 866例常规使用鼻胃管,2 845例患者选择性使用或不使用鼻胃管,结果显示,不常规放置鼻胃管的病人胃肠道功能恢复快( $P<0.00001$ ),而吻合口瘘发生率无明显变化( $P=0.70$ )。2011年,Choi等<sup>[27]</sup>收集了41例行PD患者的临床资料,其中18例放置鼻胃管,23例未放置鼻胃管,比较两组并发症发生率,结论提示常规放置鼻胃管并未减少吻合口瘘、切口裂开等并发症的风险,相反增加患者的严重不适感。

基于PD术后仍有约10%~25%的患者会出现胃排空障碍的情况<sup>[28-29]</sup>,笔者中心常规将鼻胃管放置于胃肠吻合后的输入袢内,起到术后为胰肠、胆肠吻合口减压的作用。若行PPPD术式,术后第1天查看患者胃肠减压情况,排除引流不畅的情况下若24 h胃液 $<200$  mL,则拔除鼻胃管;若行PD术式,则常规在术后第3天拔除鼻胃管。

### 1.4 腹腔引流管拔除时机

腹腔引流管对PD的预后发挥着重要的作用,可引流出手术中残余的液体、坏死组织及术后手术创面渗液,对判断吻合口瘘及腹腔内出血也有

重要意义<sup>[30]</sup>。国内多数医院采取较为保守的拔管策略:术后7 d左右待患者进食并排除严重胰瘘后依次拔除腹腔引流管。ERAS推行过程中争议的焦点主要集中在是否所有患者均需常规放置腹腔引流管,及早期拔除腹腔引流管的时机上面。2001年,美国一项单中心的随机对照研究结果提示PD术后放置腹腔引流管并不能降低病死率及并发症率,相反,患者出现腹腔脓肿及胰瘘、胆瘘等并发症的概率会增加<sup>[31]</sup>。国际上随后发表的一些随机对照研究甚至是Meta分析均提示胰腺手术后放置腹腔引流管益处不大却有增加并发症的风险<sup>[32-34]</sup>。然而2014年美国一项多中心随机对照试验研究<sup>[35]</sup>显示,术后不放置引流管会导致90 d病死率由3%增加至12%,这导致该研究中途叫停。笔者认为,即使在影像学及介入技术高度发展的今天,仍应重视腹腔引流管的作用:早期可引流术区残留的液体及坏死组织,避免吻合口周围积聚大量液体影响吻合口的愈合。为探讨早期拔管优劣及时机的问题,2006年Kawai等<sup>[36]</sup>将104例胰头切除患者分为早期拔管组(术后第4天)及常规拔管组(术后第8天),结果显示早期拔管组胰瘘的发生率显著低于常规拔管组(3.6% vs. 23.0%,  $P=0.0038$ )。2010年Bassi等<sup>[37]</sup>报道的随机对照研究结果也提示术后早期拔管具有降低术后胰瘘、腹部并发症、肺部并发症发生率及减少术后住院时间等优势。

笔者中心对于PD常规放置腹腔引流管,术后第1天起每日复查引流液淀粉酶浓度,对于胰瘘低危患者(胰腺质地硬,胰管扩张),若3次引流液淀粉酶值呈下降趋势且第3天腹腔引流液淀粉酶浓度均 $<3$ 倍正常值时可考虑术后第4天起依次拔管;对于胰瘘高危(胰腺质地软,胰管细小)、手术时间长、术中出血多、扩大根治性切除患者,若连续3次引流液淀粉酶值呈下降趋势且第5天腹腔引流液淀粉酶浓度均 $<3$ 倍正常值时可考虑术后第6天起依次拔管;若连续3次引流液淀粉酶值呈上升趋势,拔管时间则应综合感染指标、术区影像学等综合考虑。

## 2 结 语

ERAS在胰腺外科的推广较为缓慢,究其原因可能与胰腺手术较困难、胰腺相关ERAS共识指南较缺乏、胰腺手术ERAS措施循证级别不高、各单位ERAS方案及评价标准不一等有关。这些问题



需要围绕“以患者为中心”并通过多学科综合治疗协作组的共同努力,在循证医学指导下积极开展多中心临床研究,获取我国人群的临床证据报道,将所谓的争议与关键问题消除,才能更好的推广并造福于患者。

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