

儿童慢性胰腺炎的外科治疗

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摘要

儿童慢性胰腺炎的发病率逐年上升, 其病因学、临床表现及治疗策略与成人存在显著差异。本文总结了儿童慢性胰腺炎的常见病因、症状、影像诊断及外科治疗的方法。研究提示, 外科干预的指征包括感染性胰腺坏死、假性囊肿并发症、胆道梗阻及难治性疼痛, 手术的应用显著缓解了长期疼痛并提高生活质量。此外, 本文阐述了不同手术方式相对优势及适应人群, 为临床实践提供参考依据。未来需进一步探索儿童慢性胰腺炎的治疗及长期功能保护方案。

关键词

儿童, 慢性胰腺炎, 诊断, 外科治疗

Surgical Treatment of Chronic Pancreatitis in Children

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Abstract

The incidence of chronic pancreatitis in children is increasing year by year, and its etiology, clinical manifestations and treatment strategies are significantly different from those in adults. This paper summarizes the common causes, symptoms, imaging diagnosis and surgical treatment of chronic pancreatitis in children. Studies suggest that the indications of surgical intervention include infectious

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pancreatic necrosis, pseudocyst complications, biliary obstruction and refractory pain. The application of surgery significantly relieves long-term pain and improves the quality of life. In addition, this paper expounds the comparative advantages of different surgical methods and their adaptability to the population, and provides reference for clinical practice. In the future, it is necessary to further explore the treatment and long-term functional protection scheme of chronic pancreatitis in children.

Keywords

Children, Chronic Pancreatitis, Diagnosis, Surgical Treatment

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1. 引言

儿童胰腺炎作为一种临床相对少见的疾病, 长期以来未受到足够重视。流行病学数据显示, 发病率逐年上升, 儿童急性胰腺炎的发病率约为 3.6~13.2 例/10 万儿童, 且在不同年龄段呈现不同的病因分布特征。与成人胰腺炎不同, 儿童胰腺炎在病因学、临床表现、疾病进程和治疗策略等方面均具有独特特点, 故针对儿童群体的研究显得尤为重要。

2. 病因学

近年来儿童胰腺炎的发病率呈逐步上升, 致病病因与成人存在显著差异, 与遗传、解剖、代谢、感染、外伤和药物等因素密切相关[1]。不同病因不仅影响疾病的临床表现和自然病程, 也决定了治疗策略的选择。基因突变为儿童胰腺炎主要致病因素, 常见于慢性胰腺炎的突变基因有: 囊性纤维化跨膜传导调节因子(CFTR)、阳离子胰蛋白酶原(PRSS1)、胰腺分泌型胰蛋白酶抑制剂(SPINK1)、糜蛋白酶 C (CTRC) 和羧肽酶 1 (CPA1) [2]-[5]。大部分患儿中可以检测出至少 1 个可识别的突变基因[6]。此外先天发育异常(畸形)、肿瘤堵塞、括约肌功能障碍、外伤、自身免疫性疾病、代谢毒物等均为儿童胰腺炎的病因[7][8]。

3. 诊断评估

3.1. 临床表现与鉴别诊断

儿童胰腺炎以腹痛为最常见症状, 疼痛通常局限在上腹部, 超过 90% 的患儿会出现不同程度的腹痛[9]。此外还包括其他症状, 如恶心呕吐、食欲减退等。这些症状常导致患儿失去正常社会与家庭生活, 加重家庭经济负担[10][11]。此外, 研究表明, 慢性胰腺炎易致儿童胰腺持续性损伤, 如: 萎缩、钙化、导管不规则/阻塞/扩张或结石、异常侧枝[12]。若未及时有效诊治易导致胰腺萎缩甚至功能丧失, 严重阻碍儿童生长发育。

值得注意的是, 儿童胰腺炎临床表现具有年龄差异。低龄儿可能无法准确描述腹痛, 表现为烦躁不安、拒食、不明原因哭闹或生长迟缓。这种临床表现的不确定性增加了误诊风险。

3.2. 影像学评估策略

影像学检查在儿童胰腺炎诊断、严重程度评估和并发症识别中发挥关键作用, 同时也为是否需要外科干预提供了重要依据。选择何种影像学方法需综合考虑患儿年龄、临床状况、检查目的以及设备可用

性等因素。常见的影像学手段有腹部超声、CT、MRI、ERCP、MRCP等。其中,小儿胰腺炎首选影像学检查为腹部超声,它具有非侵入性、无辐射、操作简单等优点。然而,超声检查受肠道气体和患儿体型的限制,对胰腺整体显示和胰管评估效果有限,对轻度胰腺炎或微小病变的敏感性较低(约62%~67%) [13]。腹部CT及MRI作为目前诊断胰腺炎的主要手段在临床上被广泛运用。CT有助于识别胰腺萎缩、胰管扩张或实质钙化,实质钙化的程度与纤维化密切相关,这可能是术后减轻疼痛的重要预测因素。MRI可显示胰管狭窄、胰管扩张和不规则侧支,对于早期轻度慢性胰腺炎具有较好的诊断价值[14] [15]。此外ERCP作为临床重要诊疗手段广泛应用于儿童胰腺炎诊治过程,因其为有创操作,对于儿童胰腺疾病领域相关应用具有一定局限性[16] [17]。

4. 保守及内镜治疗策略

顽固性疼痛(持续腹痛 > 6个月)是慢性胰腺炎患者的主要临床表现,所以疼痛控制是治疗的主要目的之一,药物治疗和内镜治疗是慢性胰腺炎患者早期治疗的首选[18] [19]。

非甾体抗炎药和对乙酰氨基酚曾是一线药物,阿片类药物与非阿片类药物合用也是缓解疼痛的有效药物治疗方案。但由于耐药性的存在,即使不断增加药量也只能使疼痛达到可接受的水平,而不是完全缓解疼痛[20]。

对于一些因梗阻引起慢性胰腺炎的患儿来说,ERCP是一种被广泛接受的治疗形式。但其远期疗效具有较大的局限性,疼痛缓解有效率较低且反复多次内镜治疗致患者所承受手术风险及经济负担增加[21]-[23]。近期,越来越多的研究建议慢性胰腺炎应早期手术干预,可有效缓解相关症状、体征,减少器官功能损害,有利于患儿生长发育[24] [25]。

5. 外科治疗策略

5.1. 外科干预的指征

外科治疗并非儿童胰腺炎首选,但在某些情况下需要优先考虑手术干预。对于由胰管解剖异常、胆道疾病等引起的儿童慢性胰腺炎应早期外科治疗,此外,难治性腹痛也是儿童慢性胰腺炎的手术指征之一,特别是慢性胰腺炎伴有顽固性腹痛,内科治疗无效的情况下,外科干预可适度提前[26]-[28]。

5.2. 外科治疗的优点

5.2.1. 疼痛缓解效果显著

研究表明,慢性胰腺炎治疗过程中的外科手术干预适度提前可有效缓解疼痛和改善胰腺功能。病理生理学研究表明,长期疼痛和周围、中枢神经敏感密切相关,故由慢性胰腺炎引起的疼痛是难以逆转和缓解[29]。文献提示,早期手术干预能够有效延缓病情进展,明显改善临床症状体征以及保护胰腺功能[30]-[33]。

5.2.2. 长期改善生活质量

慢性胰腺炎治疗的主要目标仍是提供有效缓解疼痛和改善患者长期生活质量[22]。尽管药物管理可有效缓解早期症状,但无法延缓疾病进展且临床症状易反复。研究表明,40%至75%慢性胰腺炎患者需要手术治疗控制疼痛,且疗效优于内镜治疗,达到长期疼痛缓解的临床效果[24]。此外,早期干预可有效延缓疾病进展,并在疼痛控制和胰腺功能保护方面使患者受益[24]。

5.3. 外科手术方式

儿童慢性胰腺炎的手术方式主要包括胰十二指肠切除术、保留十二指肠的胰头切除术及引流与切除联合手术等,不同手术方式适用于不同的目标人群,同时也带来不同的风险与获益。

胰十二指肠切除术因其创伤巨大、并发症发生率和死亡率较高并不适用于儿童胰腺外科[34]。

与胰十二指肠切除术相比,保留十二指肠的胰头切除术是一种创伤小、疗效佳的手术方式,具有较低的并发症发生率,手术持续时间更短,失血量更少,住院时间也更短。近年来,外科手术技术不断精进,围术期管理更加规范,保留器官手术可有效提高生活质量,减少并发症和保护胰腺功能[35]-[37]。Beger、Frey 和 Puestow 手术是主要的引流与切除的联合手术方式,曾作为慢性胰腺炎中胰十二指肠切除术的平替手术方案,Frey、Beger 及 Puestow 总体有效性相似,常用于胰管阻塞、胆总管狭窄和导管扩张的病例[38]-[46]。

此外全胰腺切除+胰岛自体移植(total pancreatectomy with islet autotransplantation, TPIAT)也是治疗慢性胰腺炎的治疗方法之一,常用于因基因突变引起的慢性胰腺炎患者,其中以 PRSS1、SPINK1、CFTR 基因突变为病因的患者早期进行 TPIAT 可获得较好的疗效。顽固性疼痛(持续腹痛>6个月)和生活质量受损(无法上学、无法参加日常活动、反复住院)是 TPIAT 的主要适应症[47][48]。理论上,该手术方式可以从根本上消除疼痛来源,有效缓解疼痛,同时胰岛自体移植也可以使血糖受到自身调节,改善生活质量。因此,越来越多的研究人员正在将 TPIAT 的目标人群扩大到儿童慢性胰腺炎患者,一项接受该术式治疗的 75 例患儿的回顾性分析结果显示术后超过 90% 的患儿腹痛显著缓解,41.3% 无需使用胰岛素,在疼痛控制和改善生活质量方面具有良好的结果[49][50]。尽管初步研究在儿童慢性胰腺炎患者的治疗中取得了较好的结果,但需要进一步的研究来揭示 TPIAT 在儿童慢性胰腺炎患者中使用的实际有效性、目标人群和临床建议。

5.4. 围术期管理与随访

儿童慢性胰腺炎外科治疗的围术期管理及长期随访是保障手术疗效、促进患儿生长发育、减少远期并发症的关键,需结合儿童生长发育特点制定个体化方案。

5.4.1. 围术期营养支持

围术期优先推荐采用肠内营养支持,术后早期实施肠内营养可促进患者胃肠功能早期恢复,对于术后进食困难、体重无增长或增长缓慢的患者可联合肠外营养,同时定期监测血清白蛋白、前白蛋白、血红蛋白等指标,动态调整营养方案[51]。胰腺外分泌功能不全(pancreatic exocrine insufficiency, PEI)是胰腺部分或全部切除术术后并发症之一,可能会出现腹痛、腹胀、脂肪泻、体重减轻、营养不良等症状影响远期生活质量,在胰腺部分或全部切除术后应早期诊断并积极治疗。目前,胰酶替代疗法(pancreatic enzyme replacement therapy, PERT)是 PEI 的首选治疗方法。外源补充胰酶可以改善消化道症状,提高患者的生活质量[52][53]。胰腺外科国际研究小组建议在胰腺切除术后即以每餐 40,000~50,000 单位的剂量开始治疗,少量进食时可减少为 10,000~25,000 单位[54]。

5.4.2. 术后血糖监测及管理

胰腺手术创伤大,手术时间长,术后应即刻开始血糖监测。胰腺术后胰岛素分泌不稳定,应在术后 1~7 天内动态监测血糖准确数值,根据血糖情况调节胰岛素及含糖液体的输液速度,以免血糖大范围波动影响患者预后[55]-[57]。此外,针对术后存在低血糖风险的患儿(尤其是 TPIAT 术后、胰腺部分切除术后),对患儿及家属进行系统的低血糖教育,包括低血糖的典型症状(出汗、心慌、手抖、烦躁、嗜睡)及非典型表现(哭闹、拒食、生长迟缓),教会家属低血糖紧急处理措施(口服葡萄糖水、糖果,严重时静脉推注葡萄糖),避免继发损害。

5.4.3. 术后疼痛管理

研究表明,超过 60% 的患儿在术后经历了慢性疼痛,存在抑郁、失眠、焦虑、因疼痛无法上学等症

状[58]。因此, 早期、精准地对患儿开展合适的术后疼痛管理至关重要。围术期镇痛通常使用非甾体抗炎药, 考虑到成瘾、滥用和耐受的风险, 一般不使用或尽量减少使用阿片类药物[59]。对于存在长期慢性疼痛的患儿, 需联合家庭成员共同进行干预, 可通过音乐、游戏、VR 动画等多种方式分散儿童注意力, 降低患儿疼痛敏感性, 缓解患儿术后疼痛[60] [61]。

5.4.4. 康复运动及术后复学

术后可根据手术方式及患儿情况制定早期下床活动方案, 促进早期康复[62]。3 个月内以温和的有氧运动为主(如慢走), 避免剧烈运动(如跑步、跳跃), 经实验室及影像学检查评估正常后, 可逐步增加运动强度。引流手术术后 1~2 个月可逐步复学, 胰腺部分切除及 TPIAT 术后需 3~6 个月, 复学初期建议减少课业压力, 避免过度劳累。

5.4.5. 术后长期随访

部分手术患者术后会发生胰管狭窄、胰腺分泌功能不全、胰腺假性囊肿等并发症, 应定期随访和监测, 通过实验室及影像学检查对患者生长发育指标(身高、体重)、内外分泌功能、营养状况和生活质量等及时进行评估, 对于存在恶变高危因素的患者应每 3 月随访一次[63]。

6. 结语

儿童胰腺炎的外科治疗需基于病因分型、病程进展及症状体征精准实施, 相较于其他治疗方式, 手术风险更高, 对医疗护理水平有较大的挑战, 需要多学科协作诊疗。与成人不同的是儿童因生长发育, 其对于术后并发症与内外分泌功能调节是否失调的未知性更大, 故需长期随访, 监测胰腺功能, 以提高患儿的生存质量。

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