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临床经验 CLINICAL PRACTICE

肝转移介入治疗前后CT容积测量的价值

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■背景资料
肝转移瘤因为肝脏基础较好, 介入治疗结果比原发性肝癌更为肯定. 肝转移瘤溶经动脉化疗栓塞(TACE)已成为常规治疗手段. CT测量是确定实体肿瘤疗效的重要评价方法. 一维(直径)和二维(面积)测量简单实用, 但不能全面反映肿瘤在治疗前后的变化.

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Computed tomography volumetric evaluation of treatment response in patients with liver metastases for interventional therapy

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Abstract

AIM: To compare unidimensional, bidimensional computed tomography (CT), and volumetric techniques for evaluation of therapeutic response in patients with liver metastases from breast and colon carcinoma.

METHODS: Helical CT performed in 22 patients with liver metastases before and 3 mo after interventional treatment. All lesions were measured on transverse CT scans with electronic calipers according to both unidimensional and bidimensional criteria. Volumetric measurements were made by tracing individual lesions, and measurements of individual lesion were summed to obtain patient response, which were categorized as complete response, partial response, disease progression, and disease stabling (size response other than that of complete response, partial response, or disease progression).

RESULTS: Of the 22 patients, the coincidence rate of unidimensional and bidimensional measurements was 95.5% (21/22). Volumetric measurement gave results different from those obtained by unidimensional and bidimensional techniques in 8 and 6 patients, respectively. In 4 patients with partial responses according to unidimensional and bidimensional criteria, the response based on the volumetric technique was disease stabling. In 2 patients with stable disease in terms of bidimensional and unidimensional criteria, partial response was observed by volumetric measurement. In 2 patients with disease progression based on bidimensional and unidimensional criteria, stabled disease was found by volumetric criteria.

CONCLUSION: Volumetric measurement for tumors produces results different from unidimensional or bidimensional techniques in a considerable proportion of patients.

Key Words: Liver neoplasms; Metastases; Computed tomography; Interventional therapy

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摘要

目的: 比较一维、二维CT和容积测量三种方法测量肝转移介入治疗的效果.

方法: 22例肝转移的患者, 在介入治疗前和术后3 mo行螺旋CT扫描. 在CT 工作站分别按一维和二维测量横断层面的全部病灶. 用容积测量技术去追踪测量每个病灶, 将每个病灶的总和归类于全效、部分有效、病变进展、病变稳定.

结果: 在22例肝转移介入治疗前后一维与二

维测量符合率达95.5%(21/22), 但容积测量8例与一维测量不符, 6例与二例测量不符. 4例一维和二维测量结果均为部分有效, 而容积测量结果为病变稳定. 2例一维和二维测量病变稳定者, 容积测量则为部分有效. 甚至有2例一维、二维测量为病变进展者, 容积测量仍为病变稳定.

结论: 在肝转移瘤介入治疗前后, 肿瘤容积测量结果在大多数患者与一维、二维测量结果不一致. 若要证实容积测量的优势, 还需要大样本的临床对照研究.

关键词: 肝脏肿瘤; 转移瘤; 计算机断层扫描; 介入治疗

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0 引言

肝转移因为肝脏基础较好, 介入治疗结果比原发性肝癌更为肯定[1-4]. 在国内外大型综合医院, 肝转移经动脉化疗栓塞(TACE)已成为常规治疗手段. CT测量是确定实体肿瘤疗效的重要评价方法[5-15]. 一维(直径)和二维(面积)测量简单实用, 但不能全面反映肿瘤在治疗前后的变化. 最近有作者[5-10]提倡利用螺旋CT容积处理技术, 使肿瘤容积完全量化, 更能客观地反映肿瘤变化. 我院于1997年引进1250MA数字减影血管造影机, 1999年引进4排螺旋CT, 拥有较先进的数字化成像能力. 我们收集22例肝转移介入治疗前后CT资料, 利用CT工作站, 测量肿瘤容积, 并与肿瘤直径和面积测量结果相比较.

1 材料和方法

1.1 材料 肝转移患者22例, 男16例、女 6 例, 年龄39-78(平均56)岁. 原发肿瘤为直肠癌12例, 乳腺癌6例, 肺癌4例. 经股动脉插管至肝动脉, 行肝动脉造影确定肿瘤染色的数目, 大小和部位. 导管固定于肝固有动脉, 注入二联或三联化疗药, 常用的有阿霉素、丝裂霉素、5-Fu等. 然后用3F微导管分别超选肝左、右动脉, 注入超液态碘油加化疗药混悬乳剂, 栓塞各个肿瘤. 对供血丰富者, 加用明胶海绵颗粒栓塞肿瘤供血动脉TAE术. 每月重复1次.

1.2 介入治疗前后22例患者均在美国GE公司LightspeedQX/I四层螺旋CT机完成平扫和增强检查. 一次屏气完成全肝扫描. 扫描的解层面. 角度等技术参数在治疗前后完全一致. 术前CT在1 wk内, 术后为3 mo CT复查. CT测量利用一维、二维和容积3种方法. 测量结果按世界卫生组织标准[3]将患者分为4组: 全效(临床治愈), 部分有效, 病变稳定和病变进展. 全效指病灶完全消失; 部分有效指肿瘤容积减少65%以上; 病变稳定则指肿瘤容积减少不到65%, 增加不到73%. 病变进展指肿瘤容积增加73%以上; 3种测量方法在每一例患者中进行比较, 并按各自标准归类.

2 结果

一维与二维测量符合率达95.5%(21/22). 容积测量结果有8例与一维测量不一致(8/22, 36%), 有6例(6/22, 28%)与二维测量不一致. 4例一维和二维测量结果均为部分有效, 而容积测量结果为病变稳定. 2例一维和二维测量病变稳定者, 容积测量则为部分有效. 甚至有2例一维、二维测量为病变进展者, 容积测量仍为病变稳定. 22例CT资料显示, 绝大多数病灶为边界清楚的圆形病灶. 导致测量结果不一致的因素, 包括病灶多发, 不对称生长或缩小.

3 讨论

肝转移介入治疗实际上也是一种化疗[1-4], 评价其治疗效果的方法包括临床、实验室和影像学检查. 影像学的进步, 如螺旋CT和高场强MR, 可以提供治疗前后的肿瘤容积三维测量[5-15]. 本组研究结果提示, 肝转移瘤在介入治疗前后, 肿瘤直径和面积测量符合率高达95.5%(21/22); 而肿瘤容积测量与前2种方法不符合者多达1/3. 从理论上讲, 肿瘤的容积测量肯定比直径、面积测量更为准确. 当然, 这需要临床结果来证实. 由于本组患者例数少, 随访时间不长, 尚不能作出全面的评价. 关于肿瘤容积测量目前仍有很多争议[5-10]. 容积测量对那些融合性、多发性、不规则性肝转移比较准确. 但也有他的缺点, 如追踪每个肿瘤容积相当费时, CT工作站重装容积测量软件, 对非球性病灶须运用不同的记算公式等. 高档螺旋CT和MR都具备这种自动处理图像和容积计算的能力, 放射医生只需要修正一下图像处理后的肿瘤边缘部分. 我们相信肿瘤容积测量是判断肝转移介入治疗效果最准确和最客观的方法, 并在这方面做了一些尝试. 但本研究样本太少, 又是同一器官肿瘤

■应用要点
本组研究结果提示: 肝转移瘤在介入治疗前后, 肿瘤直径和面积测量符合率高达95.5%(21/22); 而肿瘤容积测量与前两种方法不符合者多达1/3. 从理论上讲, 肿瘤的容积测量肯定比直径、面积测量更为准确.

■同行评价
本文利用CT工作站比较一维、二维CT和容积测量三种方法测量转移性肝癌介入治疗的效果. 内容有一定新颖性, 对转移性肝癌临床介入治疗效果有一定的价值和指导意义.

的比较, 未与临床结果对照, 绝大多数转移瘤为规则的圆形, 因此本研究结果不适合那些不规则性、边界不清楚的转移瘤. 总之, 肝转移在介入治疗前后CT容积测量比较肿瘤直径和面积测量有很大差异. CT容积测量的价值还需要大样本的临床结果来证实.

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