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CT 对于肝脏良性占位性病变及肝癌的鉴别诊断价值分析

白利杰¹ 黄江² 沈美钺¹ 陈鑫¹ 李建龙^{3Δ}

(1 延安大学附属医院 CT 诊断科 陕西 延安 716000;

2 延安大学附属医院普外科 陕西 延安 716000; 3 延安大学附属医院放射科 陕西 延安 716000)

摘要 目的:探讨 CT 对于肝脏良性占位性病变及肝癌的鉴别诊断价值。**方法:**收取 2013 年 3 月至 2016 年 3 月我院收治的肝脏良性占位性病变及肝癌患者 101 例作为研究对象,按照病变类型将其分为 A、B、C 三组。其中 A 组包含原发性肝癌患者 32 例,B 组包含肝转移癌患者 28 例,C 组包含肝血管瘤患者 41 例。采用 CT 全肝灌注扫描模式对三组患者占位病灶组织、病灶周围组织及正常肝脏组织灌注参数进行比较。**结果:**三组占位病灶组织,B 组患者肝动脉灌注量(HAP)最低,C 组患者 HAP 最高;A 组患者门静脉灌注量(PVP)最低,C 组患者 PVP 最高,三组两两比较均有显著差异($P<0.05$)。C 组总肝灌注量(TLP)明显高于 A 组和 B 组($P<0.05$),A、B 组间无统计学差异($P>0.05$)。三组肝动脉灌注指数(HPI)无明显差异($P>0.05$);B 组病灶周围组织 HAP 及 HPI 明显高于 A、C 组($P<0.05$),A、C 组间无统计学差异($P>0.05$);三组 PVP 及 TLP 差异不显著($P>0.05$);三组正常肝脏组织 CT 灌注参数均无显著差异($P>0.05$)。**结论:**CT 灌注成像对于原发性肝癌、肝转移癌及肝血管瘤具有一定的鉴别诊断价值,但明确诊断仍需结合其他检测方法进行。

关键词:原发性肝癌;肝转移癌;肝血管瘤;CT 灌注扫描;鉴别诊断

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Clinical Value of CT in Differential Diagnosis of Liver Benign Lesion and Liver Cancer

BAI Li-jie¹, HUANG Jiang², SHEN Mei-cheng¹, CHEN Xin¹, LI Jian-long^{2Δ}

(1 CT Diagnosis Department, Yan'an University Affiliated Hospital, Yan'an, Shaanxi, 716000, China;

2 General Surgery Department, Yan'an University Affiliated Hospital, Yan'an, Shaanxi, 716000, China;

3 Radiology Department, Yan'an University Affiliated Hospital, Yan'an, Shaanxi, 716000, China)

ABSTRACT Objective: To explore the clinical value of CT in differential diagnosis of liver benign lesion and liver cancer.

Methods: 101 cases of liver benign lesion or liver cancer accepted in our hospital from March 2013 to March 2016 were selected and divided into group A, B and C according to different diseases. There were 32 patients of primary liver cancer in group A, 28 cases of liver metastasis cancer in group B and 41 cases of hepatic hemangioma in group C. The parameters of perfusion CT of local focus tissues, surrounding tissues and normal tissues of 3 groups were observed and compared. **Results:** In the comparison of local focus tissues, group B had the lowest and group C had the highest hepatic arterial perfusion (HAP), group A had the lowest and group C had the highest portal venous perfusion (PVP). The differences of 3 groups had statistically significance ($P<0.05$). The total liver perfusion (TLP) of group C was obviously higher than that of group A and B ($P<0.05$), and there were no difference between them ($P>0.05$). HPI of 3 groups had no difference ($P>0.05$). The HAP of focus surrounding tissues of group B was obviously higher than group A and C ($P<0.05$), and there were no difference between them ($P>0.05$). PVP and TLP of 3 groups had no difference ($P>0.05$). The parameters of normal liver tissues of 3 groups had no difference ($P>0.05$). **Conclusions:** The perfusion CT has a certain value in differential diagnosis of liver benign lesion and liver cancer, but we should clarify diagnosis with some other detection.

Key words: Primary liver cancer; Metastasis liver cancer; Hepatic hemangioma; CT perfusion; Differential diagnosis

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前言

作者简介:白利杰(1982-),男,本科,主治医师,主要研究方向:胸腹部 CT/MR 诊断,电话:13891126150,

E-mail: bailijie_6150@sina.com

Δ 通讯作者:李建龙(1966-),男,本科,主任医师,副教授,主要研究方向:呼吸与骨关节影像学,

E-mail: lijianlong_6604@medicine360.net

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肝癌是一种常见的消化系统恶性肿瘤,在我国有极高的发病率,如何对其进行早期诊断对于提高患者生存率及改善患者预后具有相当重要的意义^[1,2]。肝脏部位常见的占位性病变还包括肝转移癌及肝血管瘤,临床工作中需尽早完成鉴别诊断,以开展合理的治疗方案^[3]。随着影像学技术的不断发展,螺旋 CT 在肝脏占位性病变的诊断中发挥了重要的作用,其中 CT 灌注成像对于肝脏肿瘤的检出及血供情况的考察更具优势^[4,5]。本研究对我院近年来收治的肝脏良性占位性病变及肝癌患者的 CT

灌注结果进行回顾性分析,以期考察 CT 灌注对于肝脏部位疾病的鉴别诊断价值。现报道如下。

1 资料与方法

1.1 一般资料

回顾性分析 2013 年 3 月至 2016 年 3 月我院收治的肝脏良性占位性病变及肝癌患者 101 例作为研究对象,按照疾病类型的不同将其分为 A、B、C 三组。A 组包含原发性肝癌患者 32 例,其中男 18 例,女 14 例,年龄分布 41~72 岁,平均年龄(52.7 ± 5.9)岁,有吸烟史患者 11 例,饮酒史患者 15 例;B 组包含肝转移瘤患者 28 例,其中男 16 例,女 12 例,年龄分布 48~75 岁,平均年龄(55.4 ± 5.8)岁,有吸烟史患者 8 例,饮酒史患者 10 例;C 组包含肝血管瘤患者 41 例,其中男 25 例,女 16 例,年龄分布 42~59 岁,平均年龄(48.7 ± 5.6)岁,有吸烟史患者 13 例,饮酒史患者 18 例。三组患者一般资料比较无统计学差异($P>0.05$),具有可比性。

1.2 检查方法

使用西门子 64 层螺旋 CT 进行检查,采用全肝灌注模式,以 5.0 mL/s 速度打入 50 mL 非离子型对比剂,之后对全肝进行灌注扫描。参数设置如下:管电压 120 kV,管电流 70 mA,层面厚度:5 mm,扫描间距:5 mm,探测器排列 128 mm 0.625 mm,螺距:1.25mm,采集矩阵 512512。进行 0.4 s 全角旋转,时间间隔为 5 s,共进行 13 组扫描,总体检查时间约为 90 s,以便对比

剂在肝脏循环中形成完整的动态曲线。

1.3 数据处理

将获取的原始数据全部上传至螺旋 CT 配备的灌注软件,利用去卷积模型算法进行数据处理。首先设置腹主动脉、门静脉以及脾脏感兴趣区(ROI),软件即可自动生成时间-密度曲线(TDC)。将 ROI 置于占位病灶组织、病灶周围组织及正常肝脏组织,ROI 应设置为圆形或椭圆形,尽量足够大以减少噪声,且需避开肝内大血管。生成灌注参数彩图,计算并得到如下灌注参数:肝动脉灌注量(HAP)、门静脉灌注量(PVP)、总肝灌注量(TLP)以及肝动脉灌注指数(HPI)。

1.4 统计学分析

本研究采用 SPSS 17.0 统计学软件进行分析,各参数计量资料以均数 $\pm$ 标准差表示,组间两两比较,进行 t 检验。以 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 三组患者占位病灶组织 CT 灌注参数比较

对三组患者肿瘤组织 CT 灌注参数进行比较,结果显示,B 组患者 HAP 最低,C 组患者 HPA 最高;A 组患者 PVP 最低,C 组患者 PVP 最高,三组两两比较均有显著差异($P<0.05$)。C 组 TLP 明显高于 A、B 组($P<0.05$),A、B 组间无统计学差异($P>0.05$)。三组 HPI 无明显差异($P>0.05$)。见表 1。

表 1 三组患者占位病灶组织 CT 灌注参数比较($\bar{x} \pm s$)

Table 1 Comparison of CT perfusion parameters of local focus tissues of 3 groups ($\bar{x} \pm s$)

Groups	n	HAP	PVP	TLP	HPI (%)
		[mL/(min·100 mL)]	[mL/(min·100 mL)]	[mL/(min·100 mL)]	
Group A	32	26.9 $\pm$ 7.4	31.6 $\pm$ 10.8	55.1 $\pm$ 20.1	42.1 $\pm$ 11.6
Group B	28	17.3 $\pm$ 8.5	39.4 $\pm$ 13.5	50.9 $\pm$ 18.8	39.3 $\pm$ 12.5
Group C	41	42.6 $\pm$ 12.3	98.7 $\pm$ 25.6	128.6 $\pm$ 34.7	40.9 $\pm$ 13.5
aP		<0.05	<0.05	>0.05	>0.05
bP		<0.05	<0.05	<0.05	>0.05
cP		<0.05	<0.05	<0.05	>0.05

Note: *P showed the comparison of group A and group B; *P showed the comparison of group A and group C; *P showed the comparison of group B and group C.

2.2 三组患者病灶周围组织 CT 灌注参数比较

对三组患者病灶周围组织 CT 灌注参数进行比较,结果显示,B 组 HAP 及 HPI 明显高于 A、C 组 ($P<0.05$),A、C 组间无统计学差异($P>0.05$);三组 PVP 及 TLP 差异不显著($P>0.05$)。见表 2。

2.3 三组患者正常肝脏组织 CT 灌注参数比较

对三组患者正常肝脏组织 CT 灌注参数进行比较,结果显示,三组患者 CT 灌注参数均无显著差异($P>0.05$)。见表 3。

3 讨论

肝癌是我国极为常见的恶性肿瘤,且发病率呈逐年升高趋势^[7]。有研究表明,对肝癌患者进行早期诊断与合理治疗,对于提

高患者预后,延长患者生存期均具有重要意义^[8,9]。这就对相关医技科室提出了要求,如何能进行更加准确的早期诊断,成为医学工作者共同追求的目标。由于肝脏是重要的代谢器官,因此极易发生其他肿瘤的肝转移,其与原发性肝癌均可表现为肝脏占位性病变^[10]。此外,肝血管瘤也是肝脏部位交易发生的良性占位性病变之一^[11]。上述三种疾病可能具有相似的影像学表现,而其治疗方法各异,故需对其进行早期鉴别诊断,以争取治疗时间^[12,13]。

随着影像学技术的不断发展,CT 扫描已越来越多的应用到临床当中。其中,CT 灌注成像有别于动态扫描,是通过静脉快速注入对比剂,对组织各个层面进行连续 CT 扫描,从而获得感兴趣区间的时间-密度动态曲线,继而通过多种数学模型

表 2 三组患者病灶周围组织 CT 灌注参数比较 ($\bar{x} \pm s$)Table 2 Comparison of CT perfusion parameters of focus surrounding tissues of 3 groups ($\bar{x} \pm s$)

Groups	n	HAP [mL/(min·100 mL)]	PVP [mL/(min·100 mL)]	TLP [mL/(min·100 mL)]	HPI (%)
Group A	32	10.6± 4.9	60.7± 15.4	74.0± 18.4	17.4± 5.8
Group B	28	15.8± 4.2	62.6± 12.1	79.5± 19.6	26.8± 8.9
Group C	41	11.1± 4.8	65.4± 17.2	74.2± 20.9	17.6± 6.2
aP		<0.05	>0.05	>0.05	<0.05
bP		>0.05	>0.05	>0.05	>0.05
cP		<0.05	>0.05	>0.05	<0.05

Note: aP showed the comparison of group A and group B; bP showed the comparison of group A and group C; cP showed the comparison of group B and group C.

表 3 三组患者正常肝脏组织 CT 灌注参数比较 ($\bar{x} \pm s$)Table 3 Comparison of CT perfusion parameters of normal liver tissues of 3 groups ($\bar{x} \pm s$)

Groups	n	HAP [mL/(min·100 mL)]	PVP [mL/(min·100 mL)]	TLP [mL/(min·100 mL)]	HPI (%)
Group A	32	8.9± 2.3	65.4± 18.8	75.2± 19.6	12.9± 3.5
Group B	28	8.5± 2.5	63.2± 17.4	71.3± 18.7	12.5± 3.4
Group C	41	9.2± 3.1	68.1± 19.0	78.8± 20.3	12.7± 3.9
aP		>0.05	>0.05	>0.05	>0.05
bP		>0.05	>0.05	>0.05	>0.05
cP		>0.05	>0.05	>0.05	>0.05

Note: aP showed the comparison of group A and group B; bP showed the comparison of group A and group C; cP showed the comparison of group B and group C.

计算出相关灌注参数^[14,15]。CT 灌注扫描具有时间短、分辨率高、操作简便的特性,并且其软件分析结果为各种参数数值,对于局部组织的血供情况进行量化,使医生更易对病情进行掌控,因此在临床上得到了较为广泛的应用^[16]。为此,本研究特对上述疾病的 CT 灌注成像结果进行了考察,分析原发性肝癌、肝转移癌及肝血管瘤肝脏部位血供情况的不同,以期考察 CT 灌注成像对于三种疾病的鉴别诊断价值。

本研究中,三组患者占位病灶组织 CT 灌注参数显示,C 组 HAP、PVP 及 TLP 均为最高。李梦迪等人的研究也同样证实了这一点,其结果显示,肝血管瘤患者肿瘤组织 HAP、PVP 及 TLP 与肝癌患者肿瘤组织比较明显较高,并且推测该结果是由于肝血管瘤是由异常扩大的血窦构成,因此与血流动力学的变化关系密切^[17]。故本研究结果提示肝血管瘤以肝动脉及门静脉均呈高灌注状态为特征性表现,因此造成总肝灌注量升高。A 组患者 HAP 低于 C 组而高于 B 组,提示原发性肝癌病灶组织具有肝动脉血流增加的特点,可能与疾病进展有一定关系^[18]。而 PVP 较 B 组低,可能是由于门静脉阻力升高而导致的门静脉血流减少^[19]。陈圣敏等对病灶周围组织的 CT 灌注参数显示,肝转移癌及肝血管瘤患者各项参数明显较原发性肝癌患者高,并推测其与原发性肝癌肝脏实质发生毛细血管硬化现象有关^[20]。本研究对三组病灶周围组织 CT 灌注参数结果显示,肝转移癌患者 HAP 及 HPI 明显较 B、C 组高。之所以与陈圣敏等报道不甚相符,可能与原发性肝癌患者的个体差异性有关。而产生本结果的原因可能由于转移癌患者病灶周围存在微小转移灶,因此新生血管较多^[21]。而三组患者正常肝脏组织相关参数无明

显差异,提示各疾病病灶远端肝功能尚可,可早期进行原发病灶处理,以减少肝功能进一步损害。

然而,本研究为回顾性分析,无法对患者进行更加细致的分组,研究结果可能会受到固有资料的限制。关于此点,我们将在今后的研究中进行完善。

综上所述,CT 灌注成像对于原发性肝癌、肝转移癌及肝血管瘤具有一定的鉴别诊断价值,但明确诊断仍需结合其他检测方法进行。

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