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利用弥散张量成像评估中小量基底节区高血压脑出血微创手术的治疗效果(PDF)

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Title: Therapeutic efficiency of minimally invasive techniques for evacuating small to medium hematoma in hypertensive intracerebral hemorrhage in basal ganglia: an evaluation by diffusion tensor imaging

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摘要: 目的 利用弥散张量成像(diffusion tensor imaging, DTI)评估中小量基底节区高血压脑出血的微创治疗效果。方法 以101例中小量(10-40 ml)基底节区高血压脑出血患者为对象,根据治疗方式不同分为微创手术组(52例)和内科治疗组(49例),血肿体积为15-36 (23.36±7.24) ml。所有患者在发病后48 h内和发病后14 d进行DTI扫描,得到双侧皮质脊髓束(corticospinal tract, CST)的各向异性分数(fractional anisotropy, FA)及弥散张量纤维束成像(diffusion tensor tractography, DTT)图像,并根据CST完整性将微创手术组分为A(1-2级, 22例)、B(3级, 30例)两个亚组,比较微创手术组和内科治疗组之间及A、B亚组之间在以上指标的差异。结果 发病后首次DTI扫描显示微创手术组、内科治疗组受累侧的内囊区 and 大脑脚FA值均降低,两组间无明显差异($P>0.05$),第2次DTI扫描提示,微创手术组的FA值[内囊区(0.49±0.02)、大脑脚(0.47±0.03)]较内科治疗组[内囊区(0.39±0.02)、大脑脚(0.43±0.03)]明显升高($P<0.05$),且从DTT图像上可见微创手术组的CST恢复程度明显好于内科治疗组,提示对于这类患者微创手术治疗效果优于内科治疗。微创手术组的A亚组术后FA值[(0.51±0.02)高于B亚组(0.48±0.02) ($P<0.05$)],提示CST损伤越小,手术效果越好。结论 微创治疗可以提高中小量基底节区高血压脑出血患者预后,尤其是DTT显示CST以推移、变形为主者(1-2级)应更为积极采取微创治疗。

Abstract: Objective To evaluate the effect of minimally invasive evacuation on small to medium hypertensive intracerebral hemorrhage (ICH) in basal ganglia by diffusion tensor imaging (DTI). Methods A total of 101 patients with small to medium hypertensive ICH in the basal ganglia who were hospitalized in our department during June 2010 to October 2011 were enrolled, and prospectively divided into 2 matched groups, a minimally invasive treatment group ($n=52$) and a non-surgical group ($n=49$). Their volume of hematoma was 15 to 36 ml, with an average volume of 23.36±7.24 ml. All patients received DTI scanning within 48 h after intracerebral hemorrhage and in 14 d after onset. Fractional anisotropy (FA) and diffusion tensor tractography (DTT) of corticospinal tract (CST) in the affected and unaffected side were obtained. The minimally invasive treatment group was divided into A sub-group (1 to 2 grade, $n=22$) and B sub-group (3 grade, $n=30$) according to the integrity of CST. The data were compared between minimally invasive treatment group and medical treatment group, and also between A sub-group and B sub-group. Results The initial DTI scanning showed that FA values of CST in internal capsule and cerebral peduncle of affected side were significantly decreased as compared with the unaffected side, and there was no significant difference between two groups ($P>0.05$). The second DTI scanning displayed that FA values of internal capsule (0.49±0.02) and cerebral peduncle (0.47±0.03) in minimally invasive treatment group were significantly increased as compared with the non-surgical group (0.39±0.02, 0.43±0.03) ($P<0.05$), respectively. The recovery extent of CST in minimally invasive treatment group were better than the non-surgical group, which suggested minimally invasive treatment were superior to non-surgical group. The post-operative FA values of A sub-group (0.51±0.02) were higher than B sub-group (0.48±0.02) ($P<0.05$) in minimally invasive treatment group, which meant the less injury of CST was the better outcome of operation. Conclusion Minimally invasive treatment is a good method for small to medium hypertensive ICH in basal ganglia, especially when CST is displaced and deformed (1 to 2 grade) by DTT.

参考文献/REFERENCES

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