

# 原发性脑出血后肾功能损害 与脑小血管病变的关系

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**【摘要】 目的** 探讨原发性脑出血患者肾功能损害与脑小血管病变的关系。**方法** 自2017年1月-2018年3月回顾性收集本院收治的原发性脑出血患者134例,根据患者是否出现肾功能损害将患者分为观察组(合并肾功能损伤, $n=52$ )和对照组(不存在肾功能损伤, $n=82$ ),观察2组患者的预后和脑小血管病变情况。**结果** 与对照组比较,观察组患者腔隙性脑梗死和白质弥漫性疏松发生率更高[(40.38% vs. 23.17%,  $P=0.034$ )和(34.62% vs. 18.29%,  $P=0.033$ )]；与对照组比较,观察组患者FA值显著降低( $0.40 \pm 0.12$  vs.  $0.46 \pm 0.14$ ,  $P=0.012$ )；ADC值显著增高( $2.78 \pm 0.23$  vs.  $2.56 \pm 0.28$ ,  $P=0.000$ )；观察组患者认知功能显著低于对照组( $21.46 \pm 4.28$  vs.  $23.39 \pm 3.69$ ,  $P=0.006$ )；观察组患者健康相关的生存质量(SF-36)显著低于对照组( $66.75 \pm 14.57$  vs.  $72.28 \pm 10.95$ ,  $P=0.014$ )。**结论** 原发性脑出血患者肾功能损伤较为常见,其可能与患者脑小血管病变有关。

**【关键词】** 原发性脑出血；肾功能损害；血管病变

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**The relationship between renal dysfunction and cerebral small vessel disease after primary intracerebral hemorrhage** Zhu Hecai, Wen Kui, Wang Chao. Department of Neurosurgery, Bazhong City Hospital of Traditional Chinese Medicine (People's Hospital of Bazhou District), Bazhong City, Sichuan Province 636000

**【Abstract】 Objective** To investigate the relationship between renal dysfunction and cerebral small vessel disease in patients with primary cerebral hemorrhage. **Methods** From January 2017 to March 2018, 134 patients with primary cerebral hemorrhage in our hospital were retrospectively collected. According to whether the patients had renal impairment, the patients were divided into the observation group (combined with renal impairment,  $n=52$ ) and the control group (no renal impairment,  $n=82$ ). The prognosis and cerebral small vessel lesions of the two groups were observed. **Results** When compared with the control group, the incidence of lacunar infarction and leukoaraiosis in the observation group was higher [(40.38% vs. 23.17%,  $P=0.034$ ) and (34.62% vs. 18.29%,  $P=0.033$ )]. When compared with the control group, the FA value of the observation group was significantly lower ( $0.40 \pm 0.12$  vs.  $0.46 \pm 0.14$ ,  $P=0.012$ ), and the ADC value was significantly higher ( $2.78 \pm 0.23$  vs.  $2.56 \pm 0.28$ ,  $P=0.000$ ). The cognitive function of the observation group was significantly lower than that of the control group ( $21.46 \pm 4.28$  vs.  $23.39 \pm 3.69$ ,  $P=0.006$ ). The health-related quality of life (SF-36) of the observation group was significantly lower than that of the control group ( $66.75 \pm 14.57$  vs.  $72.28 \pm 10.95$ ,  $P=0.014$ ). **Conclusion** The renal injury was common in patients with primary intracerebral hemorrhage, and might be associated with cerebral small vessel disease.

**【Key words】** Primary cerebral hemorrhage Renal impairment Vascular disease

原发性脑出血是指非外伤性脑内血管破裂而导致脑实质出血,高血压病导致的脑血管损伤是主要病因,因此又称为高血压性脑出血,是致死和致残的重要疾病之一<sup>[1-4]</sup>。原发性脑出血常常伴有肾功能损害,肾功能损害可加剧患者内环境的紊乱,是患者

病死的重要诱因<sup>[5-6]</sup>。但是目前原发性脑出血患者肾功能损害与脑小血管病变的关系尚未清楚,为此本研究设计了该实验,现报道如下。

## 1 资料与方法

1.1 一般资料 自2017年1月-2018年3月回顾性收集本院收治的原发性脑出血患者134例,将

患者分为观察组(合并肾功能损伤, $n=52$ )和对照组(不存在肾功能损伤, $n=82$ ),2 组患者性别、年龄、病程、高脂血症和糖尿病等一般资料比较均无统计学差异( $P>0.05$ )(表 1)。

1.2 纳入和排除标准 纳入标准:(1)原发性脑出血;(2)年龄 18~65 岁;(3)临床资料齐全。排除标准:(1)原发性肾功能损害;(2)恶性肿瘤;(3)肝功能不全;(4)心肺功能不全;(5)其他重大疾病。

1.3 观察指标 (1)肾功能;(2)脑小血管病变(腔隙性脑梗死或白质弥漫性疏松);(3)勾画出感兴趣区包括双侧额叶、颞叶、顶叶、枕叶和半卵圆区,MRI 测量表观弥散系数(ADC)和各向异性(FA),取平均值;(4)认知功能损害情况;(5)健康相关的生存质量(SF-36)。

1.4 检测指标 (1)肾功能损伤诊断标准(AKI)采用 RIFLE 诊断标准,满足以下任何一条则可诊断:①48 h 内肾小球率过滤下降 $\geq 25\%$ ;②48 h 内肌酐上升 $\geq 50\%$ ;③尿量减少,尿量 $\leq 0.5\text{ mL}\cdot\text{kg}^{-1}\cdot\text{h}^{-1}$ 持续时间 $\geq 6\text{ h}$ ;(2)采用 MRI 评估脑小血管病变情况包括腔隙性脑梗死、白质弥漫性疏松和 MRI 参数;(3)认知功能损害情况:采用蒙特利尔认知评估量表(MoCA)评估患者认知功能;(4)健康相关的生

存质量(SF-36)评分:总分为 100 分,得分越高,生存质量越高。

1.5 统计学处理 采用 SPSS22.0, $\alpha=0.05$ 为检验标准。2 组患者计量资料采用  $t$  检验,并以均数 $\pm$ 标准差( $\bar{x}\pm s$ )表示;计数资料采用卡方检验,并以百分比(%)表示。以  $P<0.05$ 为差异有统计学意义。

2 结 果

2.1 2 组患者脑小血管病变情况比较 与对照组比较,观察组患者腔隙性脑梗死和白质弥漫性疏松发生率更高[(40.38% vs. 23.17%, $P=0.034$ )和(34.62% vs. 18.29%, $P=0.033$ )](表 2)。

2.2 2 组患者感兴趣区 MRI 参数 与对照组比较,观察组患者 FA 值显著降低( $0.40\pm 0.12$  vs.  $0.46\pm 0.14$ , $P=0.012$ );ADC 值显著增高( $2.78\pm 0.23$  vs.  $2.56\pm 0.28$ , $P=0.000$ )(表 3)。

2.3 2 组患者认知功能情况 观察组患者认知功能显著低于对照组( $21.46\pm 4.28$  vs.  $23.39\pm 3.69$ , $P=0.006$ )(图 1)。

2.4 2 组患者健康相关的生存质量(SF-36) 观察组患者健康相关的生存质量(SF-36)显著低于对照组( $66.75\pm 14.57$  vs.  $72.28\pm 10.95$ , $P=0.014$ )(图 2)。

表 1 2 组患者基本资料比较

类别	<i>n</i>	男[例(%)]	年龄( $\bar{x}\pm s$ ,岁)	病程( $\bar{x}\pm s$ ,月)	高脂血症[例(%)]	糖尿病[例(%)]
观察组	52	30(57.69)	56.37 $\pm$ 7.82	4.34 $\pm$ 1.23	23(44.23)	12(23.08)
对照组	82	54(65.85)	56.48 $\pm$ 8.12	4.53 $\pm$ 1.48	32(39.02)	20(24.39)

表 2 2 组患者脑小血管病变情况[例(%)]

类别	<i>n</i>	腔隙性脑梗死	白质弥漫性疏松
观察组	52	21(40.38)*	18(34.62)*
对照组	82	19(23.17)	15(18.29)

注:与对照组比较,\* $P<0.05$

表 3 2 组患者感兴趣区 MRI 参数( $\bar{x}\pm s$ )

类别	<i>n</i>	FA 值	ADC 值
观察组	52	$0.40\pm 0.12^*$	$2.78\pm 0.23^*$
对照组	82	$0.46\pm 0.14$	$2.56\pm 0.28$

注:与对照组比较,\* $P<0.05$

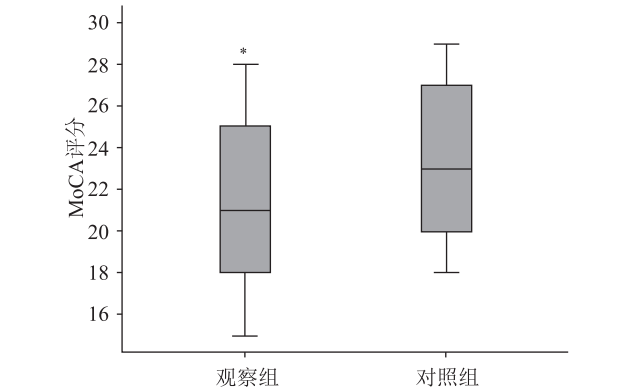


图 1 2 组患者认知功能比较 与对照组比较,\* $P<0.05$

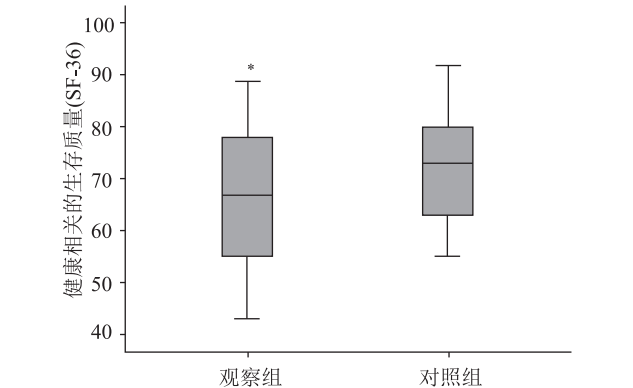


图 2 2 组患者健康相关的生存质量(SF-36)比较 与对照组比较,\* $P<0.05$

### 3 讨论

认知功能损害是脑出血后常见的并发症<sup>[7-10]</sup>,患者生活自理能力下降给家庭和社会经济带来了大量的负担。认知是人体受到外界刺激后经过感受器传导至中枢系统,并最终转换为内在的心理活动,是一种获知外界知识并应用知识的一种过程包括记忆、语言、视觉、计算等,当记忆、语言、视觉、计算等某一方面或多方面功能受损时即可表现为认知功能障碍<sup>[11-13]</sup>。原发性脑出血后认知功能障碍的主要原因是脑小血管的损害包括腔隙性脑梗死、白质弥漫性疏松等<sup>[14-16]</sup>。因此,探讨影响脑小血管病变的因素具有重要价值。本研究结果显示原发性脑出血后肾功能损害的患者,腔隙性脑梗死、白质弥漫性疏松发生率更高,FA 值更低,ADC 值更高,说明合并肾功能损害的患者更容易发生脑小血管病变。此外,患者认知功能水平和生活质量水平更低。

2017 年国外学者 Kim 报道了肾功能与颅内微小出血在神经外科健康查体人群中的相关性,受试者平均年龄( $57.5 \pm 8.3$ )岁,男 1 367 例(54.3%),平均肾小球滤过率水平为  $81.5 \pm 15.5$ ,颅内微小出血患病率为 4.1%( $n = 103$ ),发现颅内微小出血组中、重度肾功能不全的比例明显高于无颅内微小出血(15.5% vs 5.0%,  $P < 0.001$ )。在多元 logistic 回归分析中中度-重度肾功能不全与颅内微小出血显著相关( $P = 0.008$ )。此外,肾小球滤过率水平的降低与颅内微小出血的存在和颅内微小血管病变数量的增加趋势相关<sup>[17]</sup>。我国学者也证实了长期的慢性肾功能损害是颅内小血管破裂出血的独立危险因素,肾小球滤过率越低,患者颅内微小血管病变的概率越大<sup>[18]</sup>。在一项原发性脑出血患者中的研究也肯定了肾功能损害与脑小血管病变有关<sup>[1]</sup>。本研究结果显示肾功能损害的患者更容易出现腔隙性脑梗死、白质弥漫性疏松等病变。

脑小血管病变是导致患者认知功能障碍的主要危险因素。原发性脑出血患者的主要病因是高血压病,因此又称高血压性脑出血,高血压病是患者肾功能损害的主要危险因素,同时这类患者常常合并高脂血症和糖尿病,均可加剧患者肾功能的损伤,因此原发性脑出血患者肾功能损害发生率较高<sup>[19]</sup>,由此导致了患者认知功能下降,并最终导致患者生存质量下降。肾功能损害导致脑小血管病变可能与下列机制有关:(1)肾功能损害时肾素-血管紧张素-

醛固酮系统被激活,血管收缩效应加强,可进一步加剧高血压的严重程度,加剧血管内皮细胞的损伤,促进小血管纤维化和玻璃样化的发展过程;(2)肾是调节内环境的重要器官,肾功能损害时对有毒代谢产物的清除能力明显下降,加剧血管硬化的发展过程<sup>[20]</sup>;(3)肾功能损害时血脂代谢更容易紊乱,因此更容易发生高脂血症<sup>[21]</sup>,促进脑血管病变的发展过程;(4)肾功能损伤后机体对其相关的氧化应激反应和炎症因子的清除能力下降,这些因素可进一步加剧血管内皮细胞的损伤<sup>[22-25]</sup>。

综上所述,原发性脑出血患者肾功能损伤较为常见,其可能与患者脑小血管病变有关。

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