·脑出血临床研究·

亚低温疗法辅助立体定向血肿穿刺置管引流术对老年脑出血患者术后颅内压和神经功能的保护作用

向开诚 罗义华

【摘要】 **目的** 探讨亚低温疗法辅助立体定向血肿穿刺置管引流术对老年脑出血患者术后颅内压、神经功能和意识状况的保护作用。**方法** 共116例老年脑出血患者随机接受立体定向血肿穿刺置管引流术(对照组,58例)和立体定向血肿穿刺置管引流术联合亚低温疗法(联合组,58例),监测颅内压、血清S-100B蛋白和血糖水平,欧洲卒中量表(ESS)评价神经功能,Glasgow昏迷量表(GCS)评价意识状况。**结果** 两组术后颅内压升高,至术后3 d达峰值,随即下降,至术后7 d时仍高于术后即刻(对照组:$t=55.232$, $P=0.000$; $t=74.233$, $P=0.000$; $t=67.583$, $P=0.000$; $t=59.642$, $P=0.000$; $t=52.852$, $P=0.000$; $t=45.865$, $P=0.000$;联合组:$t=28.765$, $P=0.000$; $t=54.233$, $P=0.000$; $t=33.402$, $P=0.000$; $t=27.379$, $P=0.000$; $t=16.122$, $P=0.000$; $t=7.444$, $P=0.000$)。术后3、5和7 d血清S-100B蛋白(对照组:$t=9.443$, $P=0.000$; $t=12.952$, $P=0.000$; $t=18.832$, $P=0.000$;联合组:$t=11.454$, $P=0.000$; $t=15.404$, $P=0.000$; $t=20.439$, $P=0.000$)和血糖(对照组:$t=11.580$, $P=0.000$; $t=14.592$, $P=0.000$; $t=17.482$, $P=0.000$;联合组:$t=12.343$, $P=0.000$; $t=15.231$, $P=0.000$; $t=19.631$, $P=0.000$)均低于术后即刻。术后2、4、12、24和48周ESS评分高于术后即刻(对照组:$t=30.533$, $P=0.000$; $t=39.273$, $P=0.000$; $t=43.853$, $P=0.000$; $t=48.924$, $P=0.000$; $t=53.322$, $P=0.000$;联合组:$t=38.943$, $P=0.000$; $t=43.595$, $P=0.000$; $t=49.923$, $P=0.000$; $t=52.594$, $P=0.000$; $t=58.943$, $P=0.000$)。术后1和7 d GCS评分均高于术前(对照组:$t=10.434$, $P=0.000$; $t=15.232$, $P=0.000$;联合组:$t=13.432$, $P=0.000$; $t=17.532$, $P=0.000$)。而联合组患者颅内压($F=111.553$, $P=0.000$)、血清S-100B蛋白($F=9.834$, $P=0.000$)和血糖($F=8.094$, $P=0.001$)低于,ESS评分($F=10.689$, $P=0.000$)和GCS评分($F=7.343$, $P=0.007$)高于对照组。两组患者病死率差异无统计学意义[6.90%(4/58)对5.17%(3/58);校正$\chi^2=0.000$, $P=1.000$],无一例发生硬膜外血肿和颅内感染等并发症。**结论** 亚低温疗法辅助立体定向血肿穿刺置管引流术可以降低老年脑出血患者颅内压,改善神经功能和意识状况,值得临床推广应用。

【关键词】 脑出血; 引流术; 立体定位技术; 低温,人工

Effect of mild hypothermia-assisted stereotactic hematoma puncture and catheter drainage on postoperative intracranial pressure and neuroprotection in elderly patients with intracerebral hemorrhage

XIANG Kai-cheng, LUO Yi-hua

Department of Neurosurgery, Dazhou Integrated TCM and Western Medicine Hospital, Dazhou 635000, Sichuan, China

Corresponding author: XIANG Kai-cheng (Email: songxue7699@163.com)

【**Abstract**】 **Objective** To analyze the effect of mild hypothermia-assisted stereotactic hematoma puncture and catheter drainage on postoperative intracranial pressure (ICP) and neuroprotection in elderly patients with intracerebral hemorrhage (ICH). **Methods** A total of 116 elderly ICH patients randomly underwent stereotactic hematoma puncture and catheter drainage (control group, N = 58) and mild

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作者单位:635000 四川省达州市中西医结合医院神经外科

通讯作者:向开诚(Email:songxue7699@163.com)

hypothermia-assisted stereotactic hematoma puncture and catheter drainage (combination group, N = 58). ICP, serum S-100B protein (S-100B) and blood glucose were monitored. European Stroke Scale (ESS) was used to evaluate neurological function, and Glasgow Coma Scale (GCS) was used to assess conscious state. **Results** ICP increased after operation, and reached the peak on the 3rd day, and then decreased, but was still higher than immediately after operation on the 7th day in both groups (control group: t = 55.232, P = 0.000; t = 74.233, P = 0.000; t = 67.583, P = 0.000; t = 59.642, P = 0.000; t = 52.852, P = 0.000; t = 45.865, P = 0.000; combination group: t = 28.765, P = 0.000; t = 54.233, P = 0.000; t = 33.402, P = 0.000; t = 27.379, P = 0.000; t = 16.122, P = 0.000; t = 7.444, P = 0.000). The serum S-100B (control group: t = 9.443, P = 0.000; t = 12.952, P = 0.000; t = 18.832, P = 0.000; combination group: t = 11.454, P = 0.000; t = 15.404, P = 0.000; t = 20.439, P = 0.000) and blood glucose (control group: t = 11.580, P = 0.000; t = 14.592, P = 0.000; t = 17.482, P = 0.000; combination group: t = 12.343, P = 0.000; t = 15.231, P = 0.000; t = 19.631, P = 0.000) on the 3rd, 5th and 7th day in both groups were significantly lower than immediately after operation. The ESS scores 2, 4, 12, 24 and 48 weeks after operation were significantly higher than immediately after operation (control group: t = 30.533, P = 0.000; t = 39.273, P = 0.000; t = 43.853, P = 0.000; t = 48.924, P = 0.000; t = 53.322, P = 0.000; combination group: t = 38.943, P = 0.000; t = 43.595, P = 0.000; t = 49.923, P = 0.000; t = 52.594, P = 0.000; t = 58.943, P = 0.000). The GCS score on the 1st and 7th day after operation were significantly higher than before operation in both groups (control group: t = 10.434, P = 0.000; t = 15.232, P = 0.000; combination group: t = 13.432, P = 0.000; t = 17.532, P = 0.000). Compared with control group, ICP (F = 111.553, P = 0.000), serum S-100B (F = 9.834, P = 0.000) and blood glucose (F = 8.094, P = 0.001) were significantly lower, while ESS score (F = 10.689, P = 0.000) and GCS score (F = 7.343, P = 0.007) were significantly higher in combination group. There was no significant difference on the mortality between 2 groups [6.90% (4/58) vs. 5.17% (3/58); adjusted χ^2 = 0.000, P = 1.000]. No patient suffered from epidural hematoma or intracranial infection. **Conclusions** Mild hypothermia - assisted stereotactic hematoma puncture and catheter drainage can significantly reduce ICP in elderly ICH patients, and improve the neurological function and conscious state.

【**Key words**】 Cerebral hemorrhage; Drainage; Stereotaxic techniques; Hypothermia, induced

脑出血是常见的神经外科疾病[1-2]。目前，立体定向血肿穿刺置管引流术已广泛应用于脑出血的临床治疗，具有创伤小、恢复迅速和并发症少等优点[3-4]。有研究显示，脑出血患者发病72小时内的发热程度和持续时间是影响预后的重要因素[5]。李增惠等[6]采用全身降温方法治疗85例高血压脑出血患者，发现亚低温组患者预后良好率高于、重残率和病死率低于常温组。由此可见，亚低温疗法是脑出血的常见治疗措施，是将患者体温降至预期水平从而达到治疗目的的一种方法。本研究采用立体定向血肿穿刺置管引流术治疗老年脑出血患者，并于术后辅以亚低温疗法，探讨其对颅内压和神经功能的保护作用，以为临床改善老年脑出血患者预后提供新的治疗方法。

资料与方法

一、临床资料

1. 纳入标准 （1）既往有高血压病史或发病时血压升高并排除其他原因的自发性脑出血。（2）经头部CT证实出血部位位于基底节区。（3）首次发病。（4）年龄≥60岁。（5）本研究经四川省达州市中西医结合医院道德伦理委员会审核批准，所有患者或其家属均知情同意并签署知情同意书。

2. 排除标准 （1）凝血功能障碍。（2）存在同侧脑卒中病史。（3）合并精神病。

3. 一般资料 选择2016年12月–2017年11月在四川省达州市中西医结合医院神经外科住院治疗的老年脑出血患者116例，男性65例，女性51例；年龄60～74岁，平均（64.53±3.87）岁；发病至入院时间1～37 h，平均（16.32±7.22）h；头部CT显示出血部位均位于基底节区，出血量28～45 ml、平均（40.31±12.32）ml。所有患者随机接受立体定向血肿穿刺置管引流术（对照组，58例）和立体定向血肿穿刺置管引流术联合亚低温疗法（联合组，58例），两组患者性别、年龄、发病至入院时间、出血量比较，差异均无统计学意义（P>0.05，表1），均衡可比。

二、研究方法

1. 立体定向血肿穿刺置管引流术 所有患者入院后即刻进行生命体征监测，同时行实验室和影像学检查，并常规予脱水降低颅内压、抗高血压等治疗，再行立体定向血肿穿刺置管引流术。患者仰卧位，头稍偏向健侧，以CT显示血肿最大层面中心作

表1 联合组与对照组患者临床资料的比较

Table 1. Comparison of general data between 2 groups

Item	Control (N = 58)	Combination (N = 58)	χ^2 or t value	P value
Sex [case (%)]			0.035	0.852
Male	32 (55.17)	33 (56.90)		
Female	26 (44.83)	25 (43.10)		
Age ($\bar{x} \pm s$, year)	64.23 ± 3.10	64.21 ± 2.94	1.043	0.093
Duration ($\bar{x} \pm s$, h)	15.63 ± 6.83	16.71 ± 7.73	0.832	0.127
Bleeding volume ($\bar{x} \pm s$, ml)	39.24 ± 4.43	41.02 ± 4.83	0.943	0.083

χ^2 test for comparison of sex, and two-independent-sample t test for comparison of others

为靶点，确定穿刺部位、方向和穿刺针长度；常规消毒，经质量分数为2%利多卡因局部麻醉至骨膜，作头皮小切口并颅骨钻孔1个，硬脑膜电凝后挑开，避开大脑皮质表面大血管；手动电钻安装穿刺针，经头皮和皮下组织刺入穿刺点颅骨，卸下电钻，推进穿刺针刺入血肿，拔出针芯，将侧孔连接注射器缓慢抽吸血肿，再以生理盐水冲洗血肿腔至引流液清亮。部分患者采用软通道技术，切开头皮约3 cm，分离骨膜，电钻钻孔至硬脑膜，双极电凝止血，以尖刀“十”字形切开硬脑膜；选择适宜穿刺针，颅骨钻孔后穿刺至血肿部位，并通过钝头塑料针芯连接引流管，严格缓慢抽吸血肿量的1/2～2/3，严禁过度抽吸，以防止颅内压突降或脑组织塌陷导致的再出血；将血肿粉碎器缓慢刺入血肿腔，推注冲洗5 ml，排出液清澈后再注入血肿液化剂，拔出血肿粉碎器，接引流袋闭管3～4 h后开放引流，2次/d。对照组仅予立体定向血肿穿刺置管引流术，联合组予立体定向血肿穿刺置管引流术联合亚低温疗法。两组患者术后均予万古霉素1 g/次、2次/d抗感染等对症支持治疗。

2. 亚低温疗法　联合组患者立体定向血肿穿刺置管引流术后立即行亚低温治疗，予冬眠合剂[包括氯丙嗪（冬眠灵）50 mg、哌替啶（度冷丁）100 mg和异丙嗪（非那根）50 mg加入生理盐水500 ml中制备4 mg/ml溶液，再与生理盐水以体积比3∶1配成终浓度为3 mg/ml]静脉滴注，以及亚低温治疗仪控制体温，直肠温度在4～12 h内控制至35 ℃以下，维持48～72 h，复温时每4～6小时复温1 ℃，12～20 h后逐渐恢复至36～37 ℃，并根据个体情况适当采用镇静药、肌肉松弛药缓解肌肉颤动。

3. 观察指标　（1）颅内压监测：采用CAM02型颅内压监护仪（美国Integra LifeSciences公司）分别于术后即刻和2～7 d监测颅内压。（2）S-100B蛋白（S-100B）和血糖监测：分别于术后即刻、3、5、7 d清晨空腹抽取肘静脉血5 ml，采用酶联免疫吸附试验（ELISA）检测血清S-100B蛋白水平，采用日本Olympus公司生产的AU640型全自动生化分析仪以氧化酶终点法检测血糖。（3）神经功能评价：分别于术后即刻、2、4、12、24、48周采用欧洲卒中量表（ESS）评价神经功能，该量表主要包括意识状况、理解力、言语能力、视野等内容，评分＜60分，神经功能缺损严重；60～85分，神经功能改善，86～95分，神经功能有显著效果；96～100分，接近至完全痊愈。（4）意识状况评价：分别于术前、术后1和7 d采用Glasgow昏迷量表（GCS）评价意识状况，该量表包括睁眼反应、语言反应和肢体运动功能共三方面内容，评分3～15分，分数越高、预后越佳。（5）手术相关并发症：记录手术相关并发症（包括硬膜外血肿或颅内感染等）以及病死率。

三、统计分析方法

采用SPSS 19.0统计软件进行数据处理与分析。计数资料以相对数构成比（%）或率（%）表示，采用χ^2检验；呈正态分布的计量资料以均数±标准差（$\bar{x} \pm s$）表示，采用两独立样本的t检验；两组患者不同观察时间点颅内压、血清S-100B蛋白和血糖、神经功能和意识状况的比较，采用重复测量设计的方差分析，两两比较行LSD-t检验。以$P \leqslant 0.05$为差异具有统计学意义。

结　果

一、颅内压的比较

两组患者术后颅内压升高，至术后3 d达峰值，随即下降，至术后7 d时仍高于术后即刻（均$P = 0.000$），表明无论是否辅以亚低温疗法，立体定向血肿穿刺置管引流术后均升高颅内压；与对照组相比，联合组患者颅内压降低（$P = 0.000$），表明辅以亚低温疗法可以使颅内压升高幅度减小（表2～4）。

二、血清S-100B蛋白和血糖水平的比较

与术后即刻相比较，两组患者术后3、5和7 d血清S-100B蛋白（均$P = 0.000$）和血糖（均$P = 0.000$）水平均降低，表明无论是否辅以亚低温疗法，立体定向血肿穿刺置管引流术均降低血清S-100B蛋白和血糖水平；与对照组相比，联合组患者血清S-100B蛋白（$P = 0.000$）和血糖（$P = 0.001$）均降低，表明辅

表2 两组患者颅内压的比较($\bar{x} \pm s$, mm H_2O)

Table 2. Comparison of intracranial pressure between 2 groups ($\bar{x} \pm s$, mm H_2O)

Group	N	Immediately after operation (1)	2 d after operation (2)	3 d after operation (3)	4 d after operation (4)	5 d after operation (5)	6 d after operation (6)	7 d after operation (7)
Control	58	14.01 ± 0.82	19.43 ± 0.78	23.34 ± 0.68	22.76 ± 1.12	20.24 ± 1.14	19.12 ± 0.73	16.63 ± 0.51
Combination	58	13.82 ± 1.11	19.01 ± 0.81	22.98 ± 0.65	20.06 ± 0.89	18.76 ± 0.81	16.34 ± 0.43	14.03 ± 0.64

表3 两组患者颅内压的重复测量设计的方差分析表

Table 3. ANOVA of repeated measurement design for intracranial pressure between 2 groups

Source of variation	*SS*	df	*MS*	*F* value	*P* value
Treatment	712.931	1	712.931	111.553	0.000
Time	6610.106	6	1101.684	181.250	0.000
Treatment × time	1676.192	7	239.456	53.493	0.000
Error between groups	2078.764	342	6.078		
Error within group	6782.950	54	125.610		

表4 两组患者各观察时间点颅内压的两两比较

Table 4. Paired comparison of intracranial pressure at each observation time point between 2 groups

Paired comparison	Control		Combination	
	t value	*P* value	*t* value	*P* value
(1) 对(2)	55.232	0.000	28.765	0.000
(1) 对(3)	74.233	0.000	54.233	0.000
(1) 对(4)	67.583	0.000	33.402	0.000
(1) 对(5)	59.642	0.000	27.379	0.000
(1) 对(6)	52.852	0.000	16.122	0.000
(1) 对(7)	45.865	0.000	7.444	0.000

表5 两组患者血清S-100B蛋白和血糖的比较($\bar{x} \pm s$)

Table 5. Comparison of serum S-100B and blood glucose levels between 2 groups ($\bar{x} \pm s$)

Group	N	Serum S-100B (μg/L)				Blood glucose (mmol/L)			
		Immediately after operation (1)	3 d after operation (2)	5 d after operation (3)	7 d after operation (4)	Immediately after operation (1)	3 d after operation (2)	5 d after operation (3)	7 d after operation (4)
Control	58	2.12 ± 0.53	1.93 ± 0.63	1.41 ± 0.42	0.90 ± 0.51	10.73 ± 1.43	10.02 ± 1.32	9.67 ± 0.78	8.64 ± 0.73
Combination	58	2.22 ± 0.61	1.25 ± 0.65	0.72 ± 0.51	0.45 ± 0.40	10.94 ± 1.45	9.93 ± 1.24	7.56 ± 0.67	6.04 ± 0.74

S-100B, S-100B protein, S-100B蛋白。The same for Table 6–7

表6 两组患者血清S-100B蛋白和血糖的重复测量设计的方差分析表

Table 6. ANOVA of repeated measurement design for serum S-100B and blood glucose between 2 groups

Source of variation	*SS*	df	*MS*	*F* value	*P* value	Source of variation	*SS*	df	*MS*	*F* value	*P* value
Serum S-100B						Blood glucose					
Treatment	112.342	1	112.342	9.834	0.000	Treatment	94.043	1	94.043	8.094	0.001
Time	639.129	3	213.043	8.782	0.000	Time	88.743	3	29.581	10.431	0.000
Treatment × time	1686.164	4	421.541	13.843	0.000	Treatment × time	58.328	4	14.582	11.294	0.000
Error between groups	194.583	15	12.973			Error between groups	529.235	64	8.271		
Error within group	532.583	34	15.660			Error within group	542.954	54	10.051		

表7 两组患者各观察时间点血清S-100B蛋白和血糖的两两比较

Table 7. Paired comparison of serum S-100B and blood glucose between 2 groups at each observation time point

Paired comparison	Control		Combination		Paired comparison	Control		Combination	
	t value	*P* value	*t* value	*P* value		*t* value	*P* value	*t* value	*P* value
Serum S-100B					Blood glucose				
(1) 对(2)	9.443	0.000	11.454	0.000	(1) 对(2)	11.580	0.000	12.343	0.000
(1) 对(3)	12.952	0.000	15.404	0.000	(1) 对(3)	14.592	0.000	15.231	0.000
(1) 对(4)	18.832	0.000	20.439	0.000	(1) 对(4)	17.482	0.000	19.631	0.000

以亚低温疗法可以更有效降低血清S-100B蛋白和血糖水平(表5~7)。

三、神经功能的比较

与术后即刻相比,两组患者术后2、4、12、24和

表8 两组患者ESS评分的比较($\bar{x} \pm s$,评分)

Table 8. Comparison of ESS score between 2 groups ($\bar{x} \pm s$, score)

Group	N	Immediately after operation (1)	2 weeks after operation (2)	4 weeks after operation (3)	12 weeks after operation (4)	24 weeks after operation (5)	48 weeks after operation (6)
Control	58	4.14 ± 0.96	6.72 ± 1.44	10.31 ± 0.87	13.55 ± 1.33	18.11 ± 2.12	23.05 ± 3.45
Combination	58	4.22 ± 1.24	9.65 ± 1.34	15.21 ± 1.23	20.06 ± 1.45	24.43 ± 2.11	29.53 ± 2.56

表9 两组患者ESS评分的重复测量设计的方差分析表

Table 9. ANOVA of repeated measurement design for ESS score between 2 groups

Source of variation	*SS*	df	*MS*	*F* value	*P* value
Treatment	285.632	1	285.632	10.689	0.000
Time	165.464	2	82.732	11.281	0.000
Treatment × time	234.966	3	78.322	12.598	0.000
Error between groups	890.485	54	16.490		
Error within group	676.492	44	15.375		

表10 两组患者各观察时间点ESS评分的两两比较

Table 10. Paired comparison of ESS score at each observation time point between 2 groups

Paired comparison	Control		Combination	
	t value	*P* value	*t* value	*P* value
(1) 对(2)	30.533	0.000	38.943	0.000
(1) 对(3)	39.273	0.000	43.595	0.000
(1) 对(4)	43.853	0.000	49.923	0.000
(1) 对(5)	48.924	0.000	52.594	0.000
(1) 对(6)	53.322	0.000	58.943	0.000

48周ESS评分均升高(均$P = 0.000$),表明无论是否辅以亚低温疗法,立体定向血肿穿刺置管引流术均改善神经功能;与对照组相比,联合组患者ESS评分升高($P = 0.000$),表明辅以亚低温疗法可以更有效改善神经功能(表8~10)。

四、意识状况的比较

与术前相比,两组患者术后1和7 d GCS评分均升高(均$P = 0.000$),表明无论是否辅以亚低温疗法,立体定向血肿穿刺置管引流术均可以改善意识状况;与对照组相比,联合组患者GCS评分升高($P = 0.007$),表明辅以亚低温疗法可以更有效改善意识状况(表11~13)。

五、手术相关并发症和病死率

对照组58例患者中40例(68.97%)术后3 d复查CT显示血肿基本消失,拔除引流管;14例(24.14%)术后5 d复查CT显示血肿基本消失,拔除引流管;4例(6.90%)因术后出血而死亡。联合组患者58例患者中46例(79.31%)术后3 d复查CT显示血肿基本消失,拔除引流管;9例(15.52%)术后5 d复查CT显示血肿基本消失,拔除引流管;3例(5.17%)因术后出血而死亡。两组患者病死率差异无统计学意义(校正$\chi^2 = 0.000$,$P = 1.000$)。两组无一例发生硬膜外血肿和颅内感染等并发症。

讨 论

脑出血是临床常见的脑血管病,具有起病急骤、病残率和病死率高等特点[7]。研究显示,脑出血患者发病数小时内血肿分解产物即引起脑组织损害,且随着时间延长,脑组织损害更加严重[8]。因此,脑出血治疗措施的首要原则是及时清除血肿,尽可能减少血肿分解物的影响。立体定向血肿穿刺置管引流术通过CT三维重建定位穿刺点,以穿刺针形成血肿清除通道,正压冲刷、引流血肿,并液化、引流血肿,达到及时清除颅内血肿的目的[9-10]。同时,立体定向血肿穿刺置管引流术还可以快速降低颅内压,避免血肿对神经元的压迫,尽快恢复神经功能,改善预后。

脑出血后血肿占位效应引起颅内高压和神经细胞损害。高热是脑出血患者的常见并发症。研究显示,体温每升高1 ℃,脑代谢率增加8%[11-12],故控制体温不仅可以降低脑代谢率,还可以降低颅内压,改善预后,因此,对脑出血患者采取低温治疗有良好疗效。低温通常分为超深低温(≤ 16 ℃)、深低温(17~27 ℃)、中低温(28~32 ℃)和轻低温(33~35 ℃),其中,轻低温和中低温称为亚低温。亚低温疗法可以降低机体代谢率,保护血-脑屏障(BBB),减少钙离子内流,缓解炎症反应和应激反应。目前,亚低温疗法辅助立体定向血肿穿刺置管引流术业已逐渐用于脑出血的治疗。本研究结果显示,两组患者术后颅内压升高,至术后3天达峰值,随即下降,至术后7天时仍高于术后即刻;术后3、5、7天血清S-100B蛋白和血糖低于术后即刻;术后2、4、12、24和48周ESS评分高于术后即刻;术后1和7天GCS评分高于术前;而联合组颅内压、血清S-100B

表11 两组患者GCS评分的比较($\bar{x}\pm s$,评分)

Table 11. Comparison of GCS score between 2 groups ($\bar{x}\pm s$, score)

Group	N	Before operation (1)	1 d after operation (2)	7 d after operation (3)
Control	58	4.54±1.21	6.73±1.44	11.43±2.23
Combination	58	4.45±1.43	10.53±1.34	13.04±2.43

表12 两组患者GCS评分的重复测量设计的方差分析表

Table 12. ANOVA of repeated measurement design for GCS score between 2 groups

Source of variation	*SS*	df	*MS*	*F* value	*P* value
Treatment	43.532	1	43.532	7.343	0.007
Time	46.086	2	23.043	8.854	0.005
Treatment × time	219.360	3	73.120	8.123	0.006
Error between groups	75.542	50	1.511		
Error within group	73.341	41	1.789		

表13 两组患者各观察时间点GCS评分的两两比较

Table 13. Paired comparison of GCS score at each observation time point between 2 groups

Paired comparison	Control		Combination	
	t value	*P* value	*t* value	*P* value
(1) 对(2)	10.434	0.000	13.432	0.000
(1) 对(3)	15.232	0.000	17.532	0.000

蛋白和血糖低于,ESS和GCS评分高于对照组,表明亚低温疗法辅助立体定向血肿穿刺置管引流术对老年脑出血患者具有良好疗效,不仅可以显著降低颅内压,还具有神经功能和意识状况的保护作用。

颅内压是一项判断脑出血术后转归的指标。颅内压不断升高表明预后不良,反之表明预后良好。S-100B蛋白是一种由神经胶质细胞分泌的蛋白质[13-14]。正常生理情况下,S-100B蛋白具有调节神经系统生长发育、信息传递等功能。研究显示,脑出血患者血清S-100B蛋白水平明显升高,而高表达的S-100B蛋白有一定神经毒性,可以显著升高炎性因子表达水平,从而导致神经细胞凋亡[15-16],检测S-100B蛋白表达变化可以反映出脑出血严重程度。与此同时,脑出血患者颅内压升高还可以造成下丘脑-垂体-靶腺功能紊乱,胰高血糖素水平升高,从而导致糖皮质激素分泌增加[17-19],故血糖水平也可以用于判断脑出血严重程度[20]。

综上所述,亚低温疗法辅助立体定向血肿穿刺置管引流术可以显著降低老年脑出血患者颅内压,改善神经功能和意识状况,且对病死率无明显影响,具有临床推广价值。

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·小词典·

中英文对照名词词汇（四）

脑血流量 cerebral blood flow（CBF）

脑血流自动调节 cerebral autoregulation（CA）

脑血容量 cerebral blood volume（CBV）

内囊前肢腹侧 ventral anterior limb of internal capsule（vALIC）

欧洲卒中量表 European Stroke Scale（ESS）

帕金森病 Parkinson's disease（PD）

匹兹堡睡眠质量指数 Pittsburgh Sleep Quality Index（PSQI）

胼胝体膝下扣带回 subcallosal cingulate gyrus（SCG）

平均通过时间 mean transit time（MTT）

Fugl-Meyer评价量表 Fugl-Meyer Assessment Scale（FMA）

前脑内侧束 medial forebrain bundle（MFB）

丘脑底核 subthalamic nucleus（STN）

人类免疫缺陷病毒 human immunodeficiency virus（HIV）

认知行为疗法 cognitive behavioral treatment（CBT）

三维时间飞跃 three-dimensional time-of-flight（3D-TOF）

时间-密度曲线 time-density curve（TDC）

视觉模拟评分 Visual Analogue Scale（VAS）

数字减影血管造影术 digital subtraction angiography（DSA）

水痘-带状疱疹病毒 varicella-zoster virus（VZV）

死因别死亡 cause-specific death（CSD）

体重指数 body mass index（BMI）

同型半胱氨酸 homocysteine（Hcy）

^{18}F-脱氧葡萄糖 ^{18}F-fluoro-2-deoxy-D-glucose（^{18}F-FDG）

微创术与重组组织型纤溶酶原激活物联合清除颅内出血研究 Minimally-Invasive Surgery plus rt-PA for Intracerebral Hemorrhage Evacuation（MISTIE）

纤维蛋白降解产物 fibrin degradation product（FDP）

Ⅰ型单纯疱疹病毒 herpes simplex virus-1（HSV-1）

Ⅱ型单纯疱疹病毒 herpes simplex virus-2（HSV-2）

兴趣区 region of interest（ROI）

血管紧张素转换酶抑制剂 angiotensin converting enzyme inhibitor（ACEI）

血-脑屏障 blood-brain barrier（BBB）

Montgomery-Asberg抑郁量表 Montgomery-Asberg Depression Rating Scale（MADRS）

抑郁症快速自评量表 Self-Rated Quick Inventory of Depressive Symptomatology（QIDS-SR）

因早死所致的寿命损失年 years of life lost（YLL）

硬膜外前额皮质电刺激术 epidural prefrontal cortical stimulation（EpCS）

Barthel指数 Barthel Index（BI）

重症监护病房 intensive care unit（ICU）

椎动脉 vertebral artery（VA）