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高压氧联合磁刺激、醒脑静对颅脑损伤致昏迷患者的疗效

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摘要 目的：探究高压氧联合磁刺激辅以醒脑静注射液治疗重型颅脑损伤致昏迷患者的临床疗效。**方法：**根据不同的治疗方法将2011年9月~2016年3月我院收治的120例重型颅脑损伤致昏迷的患者分为观察组和对照组，两组患者均给予神经营养、抗感染、维持电解质平衡等常规外科治疗以及醒脑静注射液治疗，对照组患者在此基础上给予高压氧(HBO)治疗，观察组患者在对照组基础上给予经颅磁刺激(rTMS)治疗。比较两组患者治疗后GCS评分、机体炎症因子、临床预后、记忆功能。**结果：**治疗后，两组患者GCS评分与治疗前相比均明显上升，观察组患者的GCS评分显著高于对照组(P＜0.05)；两组患者的血清C反应蛋白(CRP)、肿瘤坏死因子(TNF-α)、白介素6(IL-6)水平均明显降低，且观察组显著低于对照组(P＜0.05)；观察组总有效率为94.55%(52/55)，与对照组的总治疗率相当(89.23%，P＞0.05)；观察组患者的长期记忆、短期记忆、瞬时记忆评分以及记忆商均显著高于对照组患者(P＜0.05)。**结论：**高压氧联合磁刺激辅以醒脑静注射液治疗重度脑损伤致昏迷患者的临床疗效显著，可下调机体炎症因子水平，促进苏醒及记忆功能的恢复。

关键词：重度颅脑损伤；昏迷；高压氧；磁刺激；醒脑静注射液

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Clinical Effect of Hyperbaric Oxygen Plus Magnetic Stimulation and Xingnaojing Injection on the Coma Patients with Severe Brain Injury

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ABSTRACT Objective: To explore the clinical effect of hyperbaric oxygen plus magnetic stimulation and Xingnaojing injection on the coma patients with severe brain injury. **Methods:** 120 coma patients with severe brain injury who were treated in our hospital from September 2011 to March, 2016 were enrolled in the present study. According to different therapies, they were divided into the observation group (55 cases) and control group (65 cases). Both groups received conventional therapy and Xingnaojing injection, on the the basis of which, the control group received the Hyperbaric Oxygen therapy, while the observation group received Magnetic Stimulation on the basis of control group. The GCS, level of inflammatory factors, clinical prognosis as well as memory function were compared between the two groups. **Results:** After the therapy, the GCS score of both groups were obviously increased and that of observation group was significantly higher than control group (P＜0.05); the serum level of CRP, TNF-α, IL-6 levels were significantly decreased compared with those before therapy, and those of observation group were obviously lower than the control group (P＜0.05); the total effective rate of observation group was 94.55% (52/55), which was equivalent to the control group (89.23%, P＞0.05); the long term memory, short term memory, instantaneous memory and memory quotient of observation group were significantly higher than those of the control group. **Conclusion:** Hyperbaric oxygen plus magnetic stimulation and Xingnaojing injectionon was effective on the coma patients with severe brain injury, it could down-regulate the inflammatory response, promote awake and recovery of memory function.

Key words: Severe brain injury; Coma; Hyperbaric oxygen; Magnetic stimulation; Xingnaojing injection

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前言

颅脑损伤是指暴力作用于头部引起的损伤，主要包括头部软组织损伤、颅骨骨折和脑损伤，交通事故、工伤等是造成颅脑损伤的主要原因。颅脑损伤可引发意识障碍，恶心、呕吐、癫痫发作等，严重影响患者生活自理能力，增加患者家庭负担。重度颅脑损伤患者常出现重度昏迷或因呼吸循环障碍发生脑疝而危及生命，被视为临床上急危重症。近年的研究表明损伤而致的继发性脑组织缺血低氧状态与颅脑损伤严重程度密切相关[1-3]。高压氧能够有效改善患者脑部缺氧状态，已广泛应用于中

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风、脑损伤等脑缺氧性疾病的治疗与恢复过程中[4,5]。经颅磁刺激是一种利用脉冲磁场作用于中枢神经系统,改变神经细胞膜电位,产生感应电流,从而影响脑内代谢,发挥改善脑循环的作用[6,7]。本研究旨在研究高压氧联合磁刺激辅以醒脑静注射液治疗重型颅脑损伤致昏迷患者的临床疗效。

1 资料与方法

1.1 一般资料

根据不同的治疗方法,将 2011 年 3~2016 年 9 月我院收治的 120 例重型颅脑损伤致昏迷的患者分为观察组和对照组。观察组包括男性 34 名,女性 21 名;平均年龄(32.36± 2.5)岁;病变类型:颅内血肿 27 例、硬膜外血肿 21 例、脑干损伤 7 例;对照组包括男性 40 名,女性 25 名;平均年龄(32.83± 2.6)岁;病变类型:颅内血肿 32 例、硬膜外血肿 25 例、脑干损伤 8 例;两组患者临床资料无统计学差异(P>0.05)。纳入标准:① 所有入组患者格拉斯哥昏迷评分(GCS)<8 分;② 所有入组患者病例资料完整;③ 所有家属签署知情同意书,该研究获得我院伦理委员会批准。排除标准:① 年龄>60 岁;② 合并其他脏器功能不全。

1.2 治疗方法

根据患者的身体状况及家属意愿将 120 例患者分为观察组(55 例)和对照组(65 例),两组患者均给予神经营养、抗感染、维持电解质平衡等常规外科治疗以及醒脑静注射液治疗(无锡济民可信山禾药业股份有限公司, 国药准字 Z32020562),20 mL/ 次,1 次 / 天,溶于 250 mL 葡萄糖溶液(5%)。在此基础上对照组患者给予高压氧(HBO)治疗(烟台冰轮高压氧舱有限公司,YC3200J-X),压力为 0.25 Mpa,每次吸氧 20 min,间歇吸空气 10 min,循环 3 次,1 次 / 天,8 天为 1 个疗程,共治疗 4 个疗程;在对照组基础上,观察组患者接受经颅磁刺激(rTMS)治疗(武汉德仁科技,NK-IC03), 患者佩戴专用治疗帽, 刺激强度为 0.72T,频率 0.5 Hz,每次脉冲时限 100 μs,每天刺激 25 序列,10 天为 1 疗程,治疗 3 个疗程结束。

1.3 检测指标

1.3.1 两组治疗前后 GCS 评分比较 采用格拉斯哥昏迷评分(GCS)[8]评价患者治疗后昏迷程度的改善情况。

1.3.2 两组炎症因子水平比较 采集各入组患者入院 24 h 及治疗后的空腹静脉血 5.0 mL,经静置离心后,收集血清于 -80℃冰箱储存。用酶联免疫法测定血清 C 反应蛋白(CRP),肿瘤坏死因子(TNF-α),白介素 6(IL-6)水平。检测试剂盒购于上海江莱生物科技有限公司,所有操作步骤均严格按照操作说明书。

1.3.3 两组患者临床预后比较 参考文献[9]判定两组患者治疗 6 个月的临床预后。痊愈:无病残情况,意识清楚,神经功能恢复正常;显效:病残程度 1~3 级,意识恢复清醒,生活能够自理;有效:病残程度 4~6 级,临床症状有一定改善;无效:病残程度 7 级,病情无好转,植物生存或死亡。

1.3.4 两组记忆功能比较 采用韦氏记忆评估量表[10]对两组患者长时、短时、瞬时记忆和记忆商进行评估。

1.4 统计学分析

使用 SPSS18.0 软件,计数资料采用卡方检验,计量资料采用 t 检验进行统计学分析,P<0.05 为差异有统计学意义。

2 结果

2.1 两组患者近期临床预后比较

治疗后,观察组总有效率为 94.55%(52/55),对照组的总有效率为(89.23%,58/65)。两组比较差异无统计学意义(P>0.05)。

表 1 两组患者近期临床预后比较(n)

Table 1 Comparison of the recent clinical prognosis between the two groups (n)

Groups	Number	Cure	Excellence	Effective	Invalid
Observation group	55	21	18	13	3
Control group	65	18	20	20	7

2.2 两组患者治疗前后 GCS 评分比较

治疗前,两组患者 GCS 评分比较差异无统计学意义(P>0.05), 两组患者均处于重度昏迷状态。经治疗后, 两组患者 GCS 评分与治疗前相比均明显上升, 观察组患者的 GCS 评分明显高于对照组(P<0.05)。

表 2 两组患者治疗前后 GCS 评分比较($\bar{x}$± s)

Table 2 Comparison of the GCS score between the two groups before and after the therapy ($\bar{x}$± s)

Groups	Number	GCS	
		Before therapy	After therapy
Observation group	55	6.24± 1.07	13.76± 1.22[ab]
Control group	65	6.26± 0.93	9.56± 1.31[a]

Note: compared with before therapy, [a]P<0.05; compared with control group, [b]P<0.05.

2.3 两组患者治疗前后血清 C 反应蛋白、肿瘤坏死因子、白介素 6 水平比较

治疗前,两组患者机体炎症因子水平相比差异无统计学意义(P>0.05);治疗后,观察组和对照组患者的血清 C 反应蛋白、肿瘤坏死因子、白介素 6 水平均明显降低,观察组患者上述指标显著低于对照组患者(P<0.05)。该结果表明,经治疗后两组患者脑损伤所致的炎症反应得到有效控制,且观察组的效果更优。

2.4 两组患者治疗前后记忆功能比较

治疗后,观察组患者的长期记忆、短期记忆、瞬时记忆评分以及记忆商均显著高于对照组患者(P<0.05),提示高压氧结合磁刺激治疗对重度脑损伤致昏迷患者的记忆功能恢复作用更明显。

表 3 两组患者治疗前后机体炎症因子水平比较($\bar{x}\pm s$)

Table 3 Comparison of the serum inflammatory factors between the two groups before and after the therapy ($\bar{x}\pm s$)

Groups	Number	CRP (mg/L)		TNF-α (μg/L)		IL-6 (μg/L)	
		Before therapy	After therapy	Before therapy	After therapy	Before therapy	After therapy
Observation group	55	9.81± 1.37	4.56± 0.72[ab]	1.50± 0.06	1.20± 0.03[ab]	0.34± 0.02	0.21± 0.02[ab]
Control group	65	9.79± 1.33	6.43± 1.06[a]	1.48± 0.07	1.35± 0.03[a]	0.35± 0.03	0.27± 0.01[a]

Note: compared with before therapy, [a]P<0.05; compared with control group, [b]P<0.05.

表 4 两组患者记忆功能比较($\bar{x}\pm s$)

Table 4 Comparison of the memory function between the two groups ($\bar{x}\pm s$)

Items	Observation	Control
Long term memory	10.82± 2.77[a]	9.36± 2.12
Short term memory	10.57± 2.36[a]	9.58± 2.13
Instantaneous memory	10.79± 2.34[a]	9.66± 2.23
Memory quotient	107.82± 22.16[a]	98.87± 15.39

Note: compared with control group, [a]P<0.05.

3 讨论

重度颅脑损伤因具有发病迅速,合并高致死,致残率的特点,一直以来其治疗是临床的难点。脑损伤所致重度昏迷与脑损伤严重程度密切相关，亦是记忆功能障碍的重要影响因素[11]。高压氧是治疗重度颅脑损伤的常见手段,可快速改善脑部缺血低氧状态,促进脑组织及周围代谢循环,进而减轻脑水肿有效降低颅压。另外,高压氧还可减少 NO,自由基等内源性毒素的产生,维持神经细胞膜的结构完整,有利于损伤组织的修复[12-14]。醒脑静注射液是一种常用于修复缺血性脑损伤的中药制剂,具有清热泻火,凉血解毒,开窍醒脑的功效。现代医学表明,醒脑注射液可通过血脑屏障,减少氧自由基的产生,抑制神经元细胞凋亡。醒脑静注射液联合高压氧治疗可有效改善患者昏迷状态[14-16]。经颅刺激技术是一种无创,无痛的绿色治疗方法,刺激大脑神经,在临床神经疾病及康复领域获得越来越多的认可。规律的磁场作用于神经组织,可改善组织血供,扩张血管,干扰异常脑电冲动。此外,经颅刺激可激活植物神经功能,兴奋大脑皮层,促进苏醒[17-19]。

本研究结果显示：经 HBO 联合磁刺激并辅以醒脑静注射液治疗后,脑损伤致重度昏迷患者的 GCS 评分,临床预后,机体炎症状态改善情况以及记忆功能评分均明显优于单用高压氧联合醒脑静注射液治疗。该结果提示经颅刺激技术与高压氧联合具有显著的协同效应。沈泉等人的研究结果也表明重度昏迷患者接受高压氧联合经颅磁刺激疗法的临床效果更好,推测其作用机制可能是磁刺激改善患者脑内电活动紊乱,改善脑内微循环，在此基础上高压氧和醒脑液进一步改善患者脑血供、氧供状态,三者协同作用防止损伤恶化,增强修复能力,为脑神经系统的恢复创造积极条件[20]。

综上所述,高压氧联合磁刺激辅以醒脑静注射液治疗重度脑损伤致昏迷患者的临床疗效显著，可下调机体炎症因子水平,促进苏醒及记忆功能的恢复。

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