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论著

弱视治愈儿童图形视觉诱发电位的观察分析

肖满意[1], 魏欣[1,2], 李筠萍[1], 熊炜[1], 徐淑贤[1]

1. 中南大学 湘雅二医院眼科, 长沙 410011;
2. 中南大学 计算机科学与技术学院, 长沙 410083

摘要:

目的: 通过观察比较已治愈弱视患儿与正常视力儿童的图形视觉诱发电位(pattern visual evoked potential, P-VEP), 寻求一种客观评价儿童视功能及预测弱视疗效的手段, 并且进一步观察影响P-VEP的相关因素, 为进一步探讨弱视的发病机制提供临床依据。方法: 将60例 8~12岁经正规弱视治疗后弱视治愈儿童分为单眼弱视治愈组(40人, 弱视治愈眼40只, 而另眼为相对正常眼40只)及双眼弱视治愈组(20人40只眼)。20例视力正常的同龄儿童为正常对照组。比较3组P-VEP的潜伏期和振幅, 并通过线性回归分析影响P-VEP的相关因素。结果: 3组双眼矫正视力比较差异均无统计学意义(P>0.05)。单眼弱视治愈组及双眼弱视治愈组的弱视眼P100 波较正常组潜伏期延长、振幅降低;其中单眼弱视治愈组弱视眼明显低于双眼弱视治愈组。单眼弱视治愈组的相对正常眼P100 波较正常组潜伏期延长、振幅降低, 而与双眼弱视治愈组比较差异无统计学意义(P>0.05), 与自身弱视眼比较P100 波潜伏期缩短、振幅增加(P<0.05)。线性回归分析结果显示影响弱视眼P100 潜伏期的主要相关因素是初治矫正视力、初治年龄及屈光度。结论: 通过弱视治疗, 虽然患儿视力恢复正常, 但弱视眼及相对正常眼的视功能仍未恢复正常;初治矫正视力、初治年龄及屈光度对患儿视力及视功能恢复均有重要影响;仅针对增加视力的传统弱视治疗对于提高双眼视功能仍有不足。

关键词: 图形视觉诱发电位 弱视 视功能

Pattern visual evoked potentials in normal-vision eyes of post-therapy amblyopia

XIAO Manyi[1], WEI Xin[1,2], LI Yunping[1], XIONG Wei[1], XU Shuxian[1]

1. Department of Ophthalmology, Second Xiangya Hospital, Central South University, Changsha 410011;
2. School of Information Science and Engineering, Central South University, Changsha 410083, China

Abstract:

Objective: To evaluate the clinical significance of pattern visual evoked potential (P-VEP) parameters on amblyopic patients with normal-vision after pleoptic therapy.
Methods: We investigated 60 amblyopic children (8–12 years old) who gained normal-vision after pleoptic therapy. These patients were assigned to a unilateral amblyopia group (40 patients) and a bilateral amblyopia group (20 patients). Another 20 healthy children served as a control group. All patients underwent a full initial ophthalmologic and orthoptic evaluation. P-VEP test was performed in all. Amplitude and latencies were analyzed and compared among groups. The latencies of P100 waves in the amblyopic eyes were used to generate a multiple linear regression formula from sex, first treatment age, baseline visual acuity, and cycloplegic refraction.
Results: There was no significant difference in the mean levels of best-corrected visual acuity among groups (P>0.05). A significant prolongation of the latency and a decrease of amplitude of P100 waves were observed in the unilateral amblyopia group and the bilateral amblyopia group compared with the healthy control group (P<0.05). Amplitude and latencies of the fellow eyes in the unilateral amblyopia group were abnormal compared with the healthy control group (P<0.05). Multiple linear regression analysis revealed that the latencies of P100 waves were significantly correlated with the first treatment age, baseline visual acuity, and cycloplegic refraction (R^2=0.52, P<0.05).
Conclusion: Deficits exist in the fellow eyes and in normal-vision eyes after pleoptic therapy. The delayed P100 latency is affected by the first treatment age, baseline visual acuity, and cycloplegic refraction. Traditional amblyopic therapy may be not enough for vision function recovery.

Keywords: pattern visual evoked potential amblyopia vision function

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通讯作者: 魏欣,Email:weixin0721@aliyun.com

作者简介: 肖满意,博士,教授,主要从事视觉发育方面的研究。

作者Email: weixin0721@aliyun.com

参考文献：

1. Heravian J, Daneshvar R, Dashti F, et al. Simultaneous pattern visual evoked potential and pattern electroretinogram in strabismic and anisometropic amblyopia［J］. Iran Red Crescent Med J, 2011, 13 (1): 21-26.

2. Halfeld Furtado de Mendonca R, Abbruzzese S, Bagolini B, et al. Visual evoked potential importance in the complex mechanism of amblyopia［J］. Int Ophthalmol, 2013[Epub ahead of print].

3. Friendly DS, Weiss IP, Barnet AB, et al. Pattern-reversal visual-evoked potentials in the diagnosis of amblyopia in children［J］. Am J Ophthalmol, 1986, 102(3): 329-339.

4. 李少敏, 蔡浩然, 郭静秋. 弱视儿童非弱视眼的视觉诱发电位分析［J］. 中华眼科杂志, 1995, 31(6): 422-425. LI Shaomin, CAI Haoran, GUO Jingqiu. The visual evoked potentials of non-amblyopic eyes in children with amblyopia［J］. Chinese Journal of Ophthalmology, 1995, 31(6): 422-425.

5. Birch EE. Amblyopia and binocular vision［J］. Prog Retin Eye Res, 2013, 33: 67-84.

6. 刘文舟, 段俊国, 周华祥. 弱视儿童图形视觉诱发电位分析［J］. 临床神经电生理学杂志, 2001(10): 49-51. LIU Wenzhou, DUAN Junguo, ZHOU Huaxiang. Analysis of pattern visual evoked potentials in amblyopic children［J］. Journal of Epileptology and Electroneurophysiology, 2001(10): 49-51.

7. Körtvélyes J, Bankó EM, Andics A, et al. Visual cortical responses to the input from the amblyopic eye are suppressed during binocular viewing［J］. Acta Biol Hung, 2012, 63 (1): 65-79.

8. Farivar R, Thompson B, Mansouri B, et al. Interocular suppression in strabismic amblyopia results in an attenuated and delayed hemodynamic response function in early visual cortex［J］. J Vis, 2011, 11 (14): 1-12.

9. Levi DM. Prentice award lecture 2011: removing the brakes on plasticity in the amblyopic brain［J］. Optom Vis Sci, 2012, 89(6): 827-838.

10. Wallace DK, Lazar EL, Melia M, et al. Stereoacuity in children with anisometropic amblyopia［J］. J AAPOS, 2011, 15(5): 455-461.

11. Liu XY, Zhang T, Jia YL, et al. The therapeutic impact of perceptual learning on juvenile amblyopia with or without previous patching treatment［J］. Invest Ophthalmol Vis Sci, 2011, 52(3):1531-1538.

12. Hou F, Huang CB, Tao L, et al. Training in contrast detection improves motion perception of sinewave gratings in amblyopia［J］. Invest Ophthalmol Vis Sci, 2011, 52(9): 6501-6510.

13. Huang CB, Zhou Y, Lu ZL. Broad bandwidth of perceptual learning in the visual system of adults with anisometropic amblyopia［J］. Proc Natl Acad Sci USA, 2008, 105(10): 4068-4073.

14. Holmes JM, Lazar EL, Melia BM, et al. Effect of age on response to amblyopia treatment in children［J］. Arch Ophthalmol, 2011, 129(11): 1451-1457.

15. Laria C, Piñero DP, Alió JL. Characterization of Bangerter filter effect in mild and moderate anisometropic amblyopia: predictive factors for the visual outcome［J］. Graefes Arch Clin Exp Ophthalmol, 2011, 249(5): 759-766.

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