

DOI:10.11798/j.issn.1007-1520.201903012

· 论 著 ·

视频眼震电图对突发性聋伴眩晕患者前庭功能的诊断价值分析

刘寒波,赵哲成,文剑雪,彭 鹏,肖 琰,彭理华

(湘雅医学院附属株洲医院 株洲市中心医院 耳鼻咽喉头颈外科,湖南 株洲 412000)

摘 要: **目的** 探讨视频眼震电图对突发性聋伴眩晕患者前庭功能的诊断价值。**方法** 将2013年2月~2017年12月收纳的500例突聋患者作为研究对象,根据是否合并眩晕分为眩晕组(180例)和非眩晕组(320例),所有患者入院后进行纯音听力测试、视频眼震电图(videonystagmograph,VNG)检测等,比较眩晕组和非眩晕组患者纯音测听和视频眼震电图检测结果,同时统计患者平坦型、全聋型、低频型、中频型、高频型的听力曲线例数及冷热试验的前庭功能评价结果,并比较组间差异。患者根据视频眼震电图和相关检测结果进行对应治疗,统计两组患者的治疗效果。**结果** ①眩晕组患者的前庭功能正常比例(48.9%)显著低于非眩晕组(83.8%)($P<0.05$);听力学结果显示听力损失严重者比例(67.2%)显著高于非眩晕组(28.1%),轻度患者比例(8.3%)明显低于非眩晕组(40.0%)(P 均 <0.05);②患者的听力曲线主要有平坦型108例,其中前庭功能异常15例(13.9%);全聋型78例,其中前庭功能异常34例;低频型100例,其中前庭功能异常28例(28.0%);中频型94例,其中前庭功能异常25例(26.6%);高频型120例,其中前庭功能异常42例(35.0%)。表明全聋型曲线前庭功能异常率显著高于其他类型听力曲线患者,冷热试验结果表明前庭功能异常的主要表现为半规管轻瘫;③两组患者临床疗效其中眩晕组患者显效率26.7%(48/180)、有效率28.9%(52/180)及总有效率55.6%(100/180)明显低于非眩晕组的38.1%(122/320)、45.6%(146/320)及83.7%(268/320)(P 均 <0.05)。**结论** 突发性聋伴眩晕患者前庭功能受到明显损伤,采用视频眼震电图进行前庭功能检测对突发性聋伴眩晕患者的病情评估、诊断、治疗具有重要指导意义,值得临床借鉴。

关 键 词:突发性聋;眩晕;前庭功能;视频眼震电图

中图分类号:R764.43

Diagnostic value of video nystagmography for vestibular function evaluation in patients with sudden deafness and vertigo

LIU Han-bo, ZHAO Zhe-cheng, WEN Jian-xue, PENG Peng, XIAO Yan, PENG Li-hua

(Department of Otorhinolaryngology-Head and Neck Surgery, Zhuzhou Hospital Affiliated to Xiangya Medical College, Central Hospital of Zhuzhou City, Zhuzhou 412000, China)

Abstract: **Objective** To explore the diagnostic value of video nystagmography(VNG) for vestibular function in patients with sudden deafness and vertigo. **Methods** 500 patients with sudden deafness hospitalized in our department between Feb. 2013 and Dec. 2017 were divided into vertigo group ($n=180$) and non-vertigo group ($n=320$). Pure tone audiometry and VNG were performed to all the patients. The results of both groups were compared. Meanwhile, the case numbers of flat-type hearing loss, total hearing loss, low-frequency loss, medial-frequency loss and high-frequency loss according to the audiogram were counted, and their vestibular functions were evaluated via caloric test. All the results were compared. The patients received corresponding treatment according to the results of VNG and correlative examinations, and the therapeutic effect of the two groups was compared. **Results** ①The proportion of patients with normal vestibular function in vertigo group (48.9%) was significantly lower than that in non-vertigo group (83.8%)($P<0.05$). The proportion of patients with severe hearing loss in vertigo group (67.2%) was significantly higher than that in non-vertigo group (28.1%)($P<0.05$), and the proportion of patients with mild hearing loss (8.3%) was significantly lower than that in non-vertigo group (40.0%)($P<0.05$). ②Pure tone audiometry revealed flat-type hearing loss in 108 cases including 15

(13.9%) with abnormal vestibular function, total hearing loss in 78 cases including 34 (43.6%) with abnormal vestibular function, low-frequency loss in 100 cases with abnormal vestibular function in 28 (28%), medial-frequency loss in 94 cases with abnormal vestibular function in 25 (26.6%), and high-frequency loss in 120 including 42 (35.0%) with abnormal vestibular function. The results showed that the rate of vestibular dysfunction in the patients with total deafness curve was significantly higher than those with other types of hearing curves. The caloric test showed that vestibular dysfunction was mainly displayed by hemispheric canal paralysis. ③The marked effective, effective and total effective rates of the vertigo group were 26.7% (48/180), 28.9% (52/180) and 55.6% (100/180) respectively, which were all significantly lower than those of the non-vertigo group (38.1%, 45.6% and 83.7%) (all $P < 0.05$). **Conclusion** Obviously damaged vestibular function presents in sudden deafness patients with vertigo. The vestibular function detection by VNG is of great significance to the evaluation, diagnosis and treatment of sudden deafness and vertigo, and worthy of clinical reference.

Key words: Sudden deafness; Vertigo; Vestibular function; Video nystagmography

突发性聋是指原因不明的感音神经性听力损失,多伴有耳鸣、眩晕。前庭是影响人体平衡的重要器官,人体出现眩晕或平衡出现障碍时,多需检查前庭功能^[1-3]。视频眼震电图(videonystagmograph, VNG)是目前用于前庭系统功能检查最先进的设备,对眩晕和前庭功能失调等症状可进行较客观、准确的诊断,为临床治疗提供可靠的依据^[4-6]。本研究选择了2013年2月~2017年12月收纳的500例突聋伴眩晕患者,研究了视频眼震电图对突聋伴眩晕患者的前庭功能的诊断价值。

1 资料与方法

1.1 一般资料

500例突聋患者根据是否合并眩晕分为眩晕组和非眩晕组。眩晕组180例,男104例,女76例;年龄30~65岁,平均年龄(49.5 ± 6.7)岁,平均病程为(2.6 ± 0.9)年。非眩晕组320例,男185例,女135例;年龄32~67岁,平均年龄(51.5 ± 7.2)岁,平均病程为(2.4 ± 1.2)年。两组受检者的病例数、性别比例、平均年龄、平均病程等基本资料无显著性差异, $P > 0.05$ 。病例入选标准^[7-8]:①所有患者均符合中华耳鼻咽喉科学会颁布的突发性聋诊断标准;②年龄在18~65岁;③单发性突聋;④签署知情同意书;⑤经医院伦理委员会批准同意;⑥不合并严重认知功能障碍和精神疾病患者;⑦无恶性肿瘤患者;⑧无孕妇及妊娠期妇女;⑨配合研究者。

1.2 方法

所有患者入院后进行纯音听力测试、视频眼震

电图检测等,比较眩晕组和非眩晕组患者纯音测听和VNG检测结果,统计患者平坦型、全聋型、低频型、中频型、高频型曲线的例数,通过冷热试验评价患者的前庭功能,其中冷热试验异常结果可分为半规管轻瘫、优势偏向,或二者共存,统计冷热试验不同结果的异常率,比较组间差异。患者根据视频眼震电图和相关检测结果进行地塞米松和前列地尔静脉滴注联合甲钴胺、维生素B1肌注治疗,剂量根据病情酌情确定,疗程为3周,统计两组患者的治疗效果。

1.3 评价标准^[9]

根据中华医学会耳鼻咽喉头颈外科学分会制定的突发性聋诊断标准,将临床疗效评价标准分为显效、有效及无效。总有效率=(显效例数+有效例数)/该组总例数 $\times 100\%$ 。

1.4 统计学方法

本研究采用SPSS 13.0进行数据处理。计数资料以率(%)表示,采用 χ^2 检验;计量资料采用 t 检验;多组间比较采用 F 检验。 $P < 0.05$ 为差异具有统计学意义。

2 结果

2.1 听力学与前庭功能比较

眩晕组患者的前庭功能正常比例(48.9%)显著低于非眩晕组(83.8%)($\chi^2 = 13.294$, $P < 0.05$)。听力学结果显示眩晕组听力损失严重者比例(67.2%)显著高于非眩晕组(28.1%),轻度患者比例(8.3%)明显低于非眩晕组(40.0%)($\chi^2 = 17.981$, $P < 0.05$)。具体数据详见表1。

表1 两组患者听力学与前庭功能比较 [例(%)]

组别	例数	VNG		纯音测听		
		前庭功能正常	前庭功能异常	轻度	中度	重度
眩晕组	180	88(48.9)	92(51.1)	15(8.3)	44(24.4)	121(67.2)
非眩晕组	320	268(83.8)	52(16.2)	128(40.0)	102(31.9)	90(28.1)
χ^2		13.294		17.981		
<i>P</i>		<0.05		<0.05		

2.2 听力曲线比较

患者的听力曲线主要有平坦型 108 例,患者前庭功能异常 15 例(13.9%);全聋型 78 例,患者前庭功能异常 34 例(43.6%);低频型 100 例,患者前庭功能异常 28 例(28.0%);中频型 94 例,患者前庭功能异常 25 例(26.6%);高频型 120 例,患者前庭功能异常 42 例(35.0%);表明全聋型曲线前庭功能异常率显著高于其他类型听力曲线患者,冷热试验结果表明前庭功能异常的主要表现为半规管轻瘫。5 种听力曲线组间比较,差异均具有统计学意义(*P* 均 <0.05)。具体数据详见表 2。

表2 不同听力曲线的前庭功能评价 [例(%)]

听力曲线	例数	优势偏向	半规管轻瘫	二者共存	冷热试验异常
平坦型	108	4(3.7)	9(8.3)	2(1.9)	15(13.9)
全聋型	78	4(5.1)	28(35.9)	2(2.6)	34(43.6)
低频型	100	2(2.0)	26(26.0)	—	28(28.0)
中频型	94	1(1.1)	24(25.5)	—	25(26.6)
高频型	120	2(1.7)	36(30.0)	4(3.3)	42(35.0)
<i>F</i>		5.101	8.783	4.517	4.855
<i>P</i>		<0.05	<0.05	<0.05	<0.05

2.3 疗效比较

眩晕组患者显效率 26.7% (48/180) 明显低于非眩晕组 38.1% (122/320) ($\chi^2=3.755, P<0.05$); 眩晕组患者有效率 28.9% (52/180) 明显低于非眩晕组 45.6% (146/320) ($\chi^2=4.085, P<0.05$); 眩晕组患者无效率 44.4% (80/180) 显著高于非眩晕组 16.2% (52/320) ($\chi^2=4.517, P<0.05$); 眩晕组患者总有效率 55.6% (100/180) 显著低于非眩晕组 83.7% (268/320) ($\chi^2=6.852, P<0.05$)。具体数据详见表 3。

表3 两组患者临床疗效比较 [例(%)]

组别	例数(例)	显效	有效	无效	有效率
眩晕组	180	48(26.7)	52(28.9)	80(44.4)	55.6
非眩晕组	320	122(38.1)	146(45.6)	52(16.2)	83.7
χ^2		3.755	4.085	4.517	6.852
<i>P</i>		<0.05	<0.05	<0.05	<0.05

3 讨论

正常状态下,人体两侧的前庭系统共同作用使身体维持平衡状态,当一侧前庭系统损害时,平衡被打破,则会发生前庭性眼震,因此观察患者出现的眼震可判断前庭功能是否正常^[10]。从以上介绍可知,通过观察前庭性眼震活动可判断前庭功能是否正常。视频眼震电图的工作原理是利用安装在密闭眼罩内的红外微型摄像机将眼球的运动摄录下来并输送到计算机,通过分析眼震慢动相、快动相等进行评价前庭功能^[11]。视频眼震电图可获得传统的眼震电图及 Frenzel 镜采集不到的垂直性及旋转性眼震,且水平性眼震的眼震参量更高。另外,患者受检时使用眼罩,且头位和体位不受束缚,降低了恶心呕吐等不良反应发生率^[12-14],变位试验的图像也更加稳定清晰,用于临床突聋患者前庭功能评价具有重要指导意义。

本研究结果显示,眩晕组患者的前庭功能正常比例显著低于非眩晕组;听力学结果显示听力损失严重者比例显著高于非眩晕组,组间比较差异显著。在平坦型、全聋型、低频型、中频型、高频型等 5 种听力曲线中,全聋型曲线前庭功能异常率显著高于其他类型听力曲线患者,其中前庭功能异常的主要表现为半规管轻瘫,表明视频眼震电图可反映患者的前庭功能,对突聋伴眩晕的诊断具有重要参考意义。另外,眩晕组患者治疗效果显著优于非眩晕组,差异显著。国内学者相关^[13-16]研究结果显示,突聋伴眩晕听力损失明显高于突聋非眩晕患者,前庭功能下降比例也更高,二者临床效果不明显,但前庭功能正常者的疗效显著优于前庭功能下降者。表明前庭功能下降与听力损伤呈正相关,前庭功能检查对突聋伴眩晕的诊断和预后评估具有重要参考价值。总体而言,相对于单纯性突聋患者,突聋伴眩晕的患者前庭功能受损较严重,视频眼震电图可全面评估患者前庭功能,对病情诊断、治疗具有重要参考价值。综上所述,突聋伴眩晕患者前庭功能受到明显损伤,采用视频眼震电图进行前庭功能检测对突聋伴眩晕的病情评估、诊断、治疗具有重要指导意义,值得临床借鉴。

参考文献:

[1] 肖娟. 视频眼震电图对突发性聋伴眩晕患者前庭功能的诊断

- 价值[J]. 世界临床医学, 2016, 10(8):75-76.
- Xiao J. Diagnostic value of video nystagmus for vestibular function in patients with sudden deafness and vertigo[J]. The World Clinical Medicine, 2016, 10(8):75-76.
- [2] 赵红. 突发性聋伴眩晕患者的前庭功能评价及对预后评估意义[J]. 中国医刊, 2016, 51(9):88-91.
- Zhao H. Evaluation of vestibular function in patients with sudden deafness and vertigo and its significance in prognostic[J]. Chinese Journal of Medicine, 2016, 51(9):88-91.
- [3] Yabe T, Katano H, Iino Y, et al. Observation of spontaneous nystagmus with an infrared CCD camera in patients with sudden deafness[J]. Otology Japan, 1991, 7(5):595-599.
- [4] 米拉吉·卡地尔, 张伦, 余勤. 前庭功能检查对突发性聋预后评估的临床意义[J]. 新疆医学, 2012, 42(9):44-47.
- Mirage Kadeer, Zhang L, Yu M. Clinical significance of vestibular function examination in prognosis evaluation of sudden deafness[J]. Xinjiang Medical Journal, 2012, 42(9):44-47.
- [5] Oiticica, Bittar RS, Castro CC, et al. Contribution of audiovestibular tests to the topographic diagnosis of sudden deafness[J]. Int Arch Otorhinolaryngol, 2013, 17(3):305-314.
- [6] 张楠, 付誉, 孙秀珍. 124例突聋伴眩晕患者的视频眼震电图分析[J]. 医学与哲学, 2015, 36(18):56-58.
- Zhang N, Fu Y, Sun XZ. Video nystagmograph analysis of 124 cases with sudden deafness and vertigo[J]. Medicine and Philosophy, 2015, 36(18):56-58.
- [7] 侯凌霄, 陈太生, 徐开旭, 等. 视频头脉冲试验评估突发性聋伴眩晕患者的前庭上下神经损伤范围[J]. 中华耳鼻咽喉头颈外科杂志, 2015, 50(9):718-723.
- Hou LX, Chen TS, Xu KX, et al. Evaluation of the injured range of vestibular superior and inferior nerves in sudden deafness patients with vertigo using video head impulse test[J]. Chinese Journal of Otorhinolaryngology Head and Neck Surgery, 2015, 50(9):718-723.
- [8] Kim MB, Boo SH, Ban JH. Nystagmus-based approach to vestibular stroke presenting as vertigo without initial neurologic signs[J]. Eur Neurol, 2013, 70(5-6):322-328.
- [9] 许教远, 区永康, 郑亿庆, 等. 突发性聋患者前庭功能分析[J]. 听力学及言语疾病杂志, 2014, 22(2):135-138.
- Xu JY, Ou YK, Zheng YQ, et al. Vestibular function analysis in patients with sudden deafness[J]. Journal of Audiology and Speech Pathology, 2014, 22(2):135-138.
- [10] 陈东兰, 刘娅. 视频式眼震电图在眩晕诊断中的应用[J]. 医疗卫生装备, 2011, 32(6):98.
- Chen DL, Liu Y. Application of videonystagmography to vertigo diagnosis[J]. Chinese Medical Equipment Journal, 2011, 32(6):98.
- [11] Iwasaki N, Kouzaki H, Shimizu T. BPPV-like symptoms during the course of sudden deafness: A report of 3 cases[J]. Practica Oto-Rhino-Laryngologica, 2011, 104(11):773-777.
- [12] Na SY, Kim MG, Hong SM, et al. Comparison of sudden deafness in adults and children[J]. Clin Exp Otorhinolaryngol, 2014, 7(3):165-169.
- [13] Blasco MA, Redleaf MI. Cochlear implantation in unilateral sudden deafness improves tinnitus and speech comprehension: meta-analysis and systematic review[J]. Otol Neurotol, 2014, 35(8):1426-1432.
- [14] Nilsson K, Wallménius K, Hartwig S, et al. Bell's palsy and sudden deafness associated with Rickettsia spp. infection in Sweden. A retrospective and prospective serological survey including PCR findings[J]. Eur J Neurol, 2014, 21(2):206-214.
- [15] 周平, 曾刚, 谢和新, 等. 突发性耳聋伴眩晕患者听力预后分析[J]. 中国耳鼻咽喉颅底外科杂志, 2017, 23(2):165-167.
- Zhou P, Zeng G, Xie HX, et al. Prognostic analysis of hearing outcome in patients with sudden hearing loss and vertigo[J]. Chin J Otorhinolaryngol Skull Base Surg, 2017, 23(2):165-167.
- [16] 林细康, 季晓林, 叶华, 等. 前庭功能检查对眩晕定位诊断的价值探讨[J]. 癫痫与神经电生理学杂志, 2015, 12(5):269-273.
- Lin XK, Ji XL, Ye H, et al. Value of vestibular function test for the locating diagnosis of vertigo[J]. Journal of Epileptology and Electroneurophysiology, 2015, 12(5):269-273.
- (收稿日期:2018-12-01)
- 本文引用格式:**刘寒波, 赵哲成, 文剑雪, 等. 视频眼震电图对突发性聋伴眩晕患者前庭功能的诊断价值分析[J]. 中国耳鼻咽喉颅底外科杂志, 2019, 25(3):281-284. DOI:10.11798/j.issn.1007-1520.201903012
- Cite this article as:**LIU Han-bo, ZHAO Zhe-cheng, WEN Jian-xue, et al. Diagnostic value of video nystagmography for vestibular function evaluation in patients with sudden deafness and vertigo[J]. Chin J Otorhinolaryngol Skull Base Surg, 2019, 25(3):281-284. DOI:10.11798/j.issn.1007-1520.201903012