

doi: 10.13241/j.cnki.pmb.2023.11.022

不同听力曲线分型突发性耳聋患者听阈水平及临床特征分析*

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摘要 目的:探讨不同听力曲线分型突发性耳聋患者听阈水平及临床特征分析。**方法:**前瞻性选取我院 2019 年 10 月至 2022 年 10 月我院收治的 80 例突发性耳聋患者作为研究对象。采集患者临床特征信息。检测所有患者听阈水平。采用秩和检验进行多组间差异分析;采用 Spearman 检验进行相关性分析;采用多元线性回归模型进行回归分析。**结果:**平坦下降组、低频下降组、高频下降组和全聋组在侧别、性别、糖尿病、耳鸣、眩晕、耳闷胀感亚组间差异显著($P<0.05$),而在年龄、高血压和脑梗塞亚组间无显著差异($P>0.05$);平坦下降组、低频下降组、高频下降组和全聋组在极重度、重度、中度、轻度、正常亚组间差异显著($P<0.05$);突发性耳聋患者听力曲线分型与侧别、性别、糖尿病、耳鸣、眩晕、耳闷胀感、听阈水平密切相关($P<0.05$),而与年龄、高血压、脑梗塞无关($P>0.05$);多元线性回归结果显示,耳鸣、眩晕、耳闷胀感、听阈水平、侧别是影响突发性耳聋患者听力曲线分型的独立危险因素($P<0.05$)。**结论:**突发性耳聋不同听力曲线分型患者间存在临床特征及听阈水平的差异,临床可依据患者独特疾病特征构建精准的治疗策略进行干预。

关键词:不同听力曲线分型;突发性耳聋;听阈水平;临床特征分析

中图分类号:R764.437 文献标识码:A 文章编号:1673-6273(2023)11-2113-05

Analysis of Hearing Threshold and Clinical Characteristics of Patients with Sudden Deafness Classified by Different Hearing Curves*

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ABSTRACT Objective: To investigate the hearing threshold and clinical characteristics of patients with sudden deafness classified by different hearing curves. **Methods:** Prospectively, 80 patients with sudden deafness admitted to our hospital from October 2019 to October 2022 were selected as the study population. Information on the clinical characteristics of the patients was collected. The hearing threshold levels of all patients were tested. The rank sum test was used for the analysis of differences between multiple groups; the Spearman test was used for correlation analysis; and the multiple linear regression model was used for regression analysis. **Results:** There were significant differences between the flat drop group, low frequency drop group, high frequency drop group and total deafness group in terms of side, gender, diabetes, tinnitus, vertigo, and ear swelling sensation subgroups ($P<0.05$), but there were no significant differences among the age, hypertension and cerebral infarction subgroups ($P>0.05$). There were significant differences among the flat descending group, low frequency descending group, high frequency descending group and total deafness group in extremely severe, severe, moderate, mild and normal subgroups ($P<0.05$); Hearing curve typing in patients with sudden deafness is closely related to side, gender, diabetes, tinnitus vertigo, ear congestion, and hearing threshold level ($P<0.05$), but not related to age, hypertension and cerebral infarction ($P>0.05$). Multiple linear regression results showed that tinnitus, vertigo, ear stuffiness, hearing threshold level, and lateral discrimination were independent risk factors affecting hearing curve typing in patients with sudden deafness ($P<0.05$). **Conclusion:** There are differences in clinical characteristics and hearing thresholds among patients with different hearing profiles of sudden deafness, and clinical interventions can be constructed based on patients' unique disease characteristics.

Key words: Different hearing curve classification; Sudden deafness; Hearing threshold level; Analysis of Clinical Features

Chinese Library Classification(CLC): R764.437 **Document code:** A

Article ID: 1673-6274(2023)11-2113-05

* 基金项目:2019 年度安徽省高校自然科学研究一般项目(ZR2019B02)

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(收稿日期:2023-01-10 接受日期:2023-01-31)

前言

突发性耳聋(Sudden hearing loss, SHL)是指原因不明且突发突然的感音神经性听力下降^[1]。SHL患者多在3日内听力急剧降低且相邻的两个频率听力损失 ≥ 20 dBHL^[2]。流行病学研究发现^[3],近来SHL发病率逐年递增。SHL的具体发病机制仍未被详细阐明,现阶段临床仍无治疗SHL的特异性治疗策略,致使SHL患者部分预后较差^[4]。SHL病发后可累及不同位置致使患者表现出不同的听力曲线,故不同听力曲线患者的治疗策略及预后亦存在较大差异^[5]。研究发现^[6],SHL患者听阈水平、临床特征与其病情严重程度密切相关,故针对不同听力曲线SHL患者其临床特征和听阈水平被认为是指导临床治疗制定和动态调整的关键。然而现阶段,不同听力曲线SHL患者听阈水平和临床特征仍未被系统阐明。基于此背景,本次研究拟通过纳入SHL患者作为研究对象,以期明确不同听力曲线SHL患者的听阈水平及临床特征,旨在为后续临床治疗的开展和SHL患者预后的改善奠定理论基础。

1 资料与方法

1.1 一般资料

前瞻性选取我院2019年10月至2022年10月我院收治的80例突发性耳聋患者作为研究对象。80例SHL患者中男性42例,女性38例;左耳34例,右耳43例,双耳3例,共83耳,平均年龄(46.15 ± 8.21)岁,发病至就诊平均时间(5.35 ± 0.32)d。按照听力曲线不同分组情况为:平坦下降型26例,低频下降型18例,高频下降型17例,全聋型19例。并按照患者不同听力曲线进行分组,即平坦下降型组,低频下降型组,高频下降组,全聋组。本研究经本院伦理委员会批准。

纳入标准:①符合突发性耳聋诊断和治疗指南中的诊断标准^[7];②既往听力良好且年龄 > 18 岁;③首发SHL患者;④认知功能正常,可配合相关检查。

排除标准:①存在免疫性疾病、高血压、冠心病者;②合并

其他可能影响听力的耳部疾病;③近期输血病史的患者;④入组前1个月内进行过降脂和抗凝治疗;⑤入组前1个月内进行过降脂和抗凝治疗。

1.2 方法

1.2.1 患者临床特征信息采集 由科室内责任护士采集所有患者年龄、性别、基础病史[高血压、脑梗塞、糖尿病],并记录患者眩晕、耳鸣和耳闷胀感发生情况。

1.2.2 听力检查 由科室听力师参考GB7583-87的规定对患者进行听力学检查,检查采用丹麦Otometrics ASTERA型临床听力计进行,检查操作在隔音室进行,隔音室条件需保障环境噪声 < 30 dB^[8]。

1.2.3 听阈水平检查 采用纯音听力计对患者听阈水平进行检查,检查操作由科室听力师进行。并参考下述标准对患者听力损失程度进行分级,即 > 80 dBHL为极重度; $> 60 \sim 80$ dBHL为重度; $> 40 \sim 60$ dBHL为中度; $> 25 \sim 40$ dBHL为轻度; ≤ 25 dBHL为正常。

1.2.4 听力曲线评估标准 1000 Hz以下听力下降则为低频下降型;2 000 Hz以上听力下降则为高频下降型;所有频率听力均下降,平均听阈 ≤ 80 dBHL则为平坦下降型;所有频率听力均下降,平均听阈 ≥ 81 dBHL则为全聋型。

1.3 统计学方法

应用SPSS20.0软件分析数据,以($\bar{x} \pm s$)表示计量资料,两组间比较采用独立样本t检验,同组间比较采用配对样本t检验;计数资料用百分比表示,两两组间比较采用 χ^2 检验或者秩和检验, $P < 0.05$ 为差异具有统计学意义。

2 结果

2.1 不同听力曲线分型突发性耳聋患者临床特征分析

平坦下降组、低频下降组、高频下降组和全聋组在测别、性别、糖尿病、耳鸣、眩晕、耳闷胀感亚组间差异显著($P < 0.05$),而在年龄、高血压和脑梗塞亚组间无显著差异($P > 0.05$),详情见表1。

表1 不同听力曲线分型突发性耳聋患者临床特征分析[n(%)]

Table 1 Analysis of clinical characteristics of patients with sudden deafness with different hearing curves [n (%)]

Groups	Flat drop group (n=26)	Low-frequency drop group (n=18)	High-frequency drop group (n=17)	Total deaf group (n=19)	Z	P
Age						
30~39(n=43)	12(27.91)	10(23.26)	8(18.60)	9(20.93)	0.56	0.36
40~60(n=37)	14(37.84)	8(21.62)	9(24.32)	10(27.02)		
Side farewell						
Auris sinistra(n=34)	8(23.53)	10(29.41)	7(20.59)	9(26.47)	8.64	< 0.01
Auris dextra(n=43)	18(41.86)	8(18.60)	7(16.28)	10(23.26)		
Aures unitas(n=3)	0(0.00)	0(0.00)	3(100.00)	0(0.00)		
Gender						
Male(n=42)	15(35.71)	11(26.19)	9(21.43)	7(16.67)	16.54	< 0.01
Female(n=38)	11(28.95)	7(18.42)	8(21.05)	12(31.58)		
Diabetes						
Yes(n=41)	14(34.15)	11(26.83)	10(24.39)	6(14.63)	8.64	< 0.01
No(n=39)	12(30.77)	7(17.95)	7(17.95)	13(33.33)		

Hypertension						
Yes(n=53)	17(32.07)	13(24.53)	13(24.53)	10(18.87)	0.42	0.65
No(n=27)	9(33.33)	5(18.52)	4(14.81)	9(33.33)		
Cerebral infarction						
Yes(n=47)	15(31.91)	11(23.40)	10(21.28)	11(23.40)	0.35	0.87
No(n=33)	11(33.33)	7(21.21)	7(21.21)	8(24.24)		
Tinnitus						
Yes(n=76)	25(32.89)	18(23.68)	16(21.05)	17(22.37)	12.65	<0.01
No(n=4)	1(25.00)	0(0.00)	1(25.00)	2(50.00)		
Giddiness						
Yes(n=18)	2(11.11)	2(11.11)	8(44.44)	6(33.33)	15.65	<0.01
No(n=62)	24(38.71)	16(25.81)	9(14.52)	13(20.97)		
Ear stuffiness and swelling						
Yes(n=6)	2(33.33)	1(16.67)	1(16.67)	2(33.33)	18.57	<0.01
No(n=74)	24(32.43)	17(22.97)	16(21.62)	17(22.97)		

2.2 不同听力曲线分型突发性耳聋患者听阈水平分析 重度、中度、轻度、正常亚组间差异显著($P<0.05$),详情见表 2。
平坦下降组、低频下降组、高频下降组和全聋组在极重度、

表 2 不同听力曲线分型突发性耳聋患者听阈水平分析[n(%)]

Table 2 Analysis of hearing threshold levels in patients with sudden deafness with different hearing curve subtypes [n(%)]

Groups	Flat drop group (n=26)	Low-frequency drop group (n=18)	High-frequency drop group (n=17)	Total deaf group (n=19)
Extremely Heavy	1(3.85)	0(0.00)	0(0.00)	17(89.47)
Severe	12(46.15)	0(0.00)	0(0.00)	2(10.53)
Moderate	13(50.00)	6(33.33)	3(17.65)	0(0.00)
Mild	0(0.00)	7(38.89)	8(47.06)	0(0.00)
Normal	0(0.00)	5(27.78)	6(35.29)	0(0.00)
Z	16.54	10.56	21.64	18.56
P	<0.01	<0.01	<0.01	<0.01

2.3 突发性耳聋患者听力曲线分型与临床特征及听阈水平的相关性分析 眩晕、耳闷胀感、听阈水平密切相关($P<0.05$),而与年龄、高血压、脑梗塞无关($P>0.05$),详情见表 3。

突发性耳聋患者听力曲线分型与侧别、性别、糖尿病、耳鸣

表 3 突发性耳聋患者听力曲线分型与临床特征及听阈水平的相关性分析

Table 3 Correlation analysis of hearing curve typing with clinical characteristics and hearing threshold levels in patients with sudden deafness

Groups	Hearing curve typing	
	r	P
Age	0.05	0.38
Side farewell	0.43	<0.01
Gender	0.51	<0.01
Diabetes	0.32	<0.01
Hypertension	0.03	0.53
Cerebral infarction	0.06	0.41
Tinnitus	0.47	<0.01
Circumgyration	0.51	<0.01
Ear stuffiness and swelling	0.47	<0.01
Hearing valve level	0.51	<0.01

2.4 突发性耳聋患者听力曲线分型的多元线性回归分析

多元线性回归结果显示,耳鸣、眩晕、耳闷胀感、听阈水平、

侧别是影响突发性耳聋患者听力曲线分型的独立危险因素

($P<0.05$)。详情见表 4。

表 4 突发性耳聋患者听力曲线分型的多元线性回归分析

Table 4 Multiple linear regression analysis of hearing curve typing in patients with sudden deafness

Variable	β	SE	t	P
Tinnitus	5.985	0.445	8.546	<0.01
Circumgyration	6.032	0.556	10.542	<0.01
Ear stuffiness and swelling	15.321	0.654	18.542	<0.01
Hearing valve level	16.521	0.675	20.231	<0.01
Side farewell	3.621	0.354	6.546	<0.01
Gender	6.521	0.541	10.123	0.365
Diabetes	1.026	0.023	1.221	0.156
Age	1.265	0.031	1.231	0.265
Constant term	63.212	-	1.654	0.125

3 讨论

SHL 的年发病率约 20/10 万,且有逐年递增趋势^[9]。病毒感染和血液循环障碍被认为是导致 SHL 发生、发展的核心病理机制,但 SHL 的具体发病机制仍未被完全阐明,致使临床尚无靶向干预 SHL 的特异性治疗手段^[10-12]。依据听力曲线分型开展个性化治疗干预是临床治疗 SHL 的重要思路,但近临床证据显示,同一听力曲线分型患者间仍存在较大的异质性,即患者临床特征和听阈水平仍存在较大区别,故为进一步提升 SHL 患者临床疗效,进一步对不同听力曲线分型患者的临床特征及听阈水平进行深入分析并指导后续临床治疗开展意义重大^[13,14]。

本次研究结果支持了既往观点,即不同听力曲线分型患者侧别、性别、耳鸣、眩晕、耳闷胀感的临床特征和听阈水平间存在显著差异^[15,16]。血液循环障碍被认为是 SHL 发病的中心靶点,合并高血压、糖尿病、脑梗塞患者多存在血管功能障碍并伴随血液循环功能异常^[17]。本次研究结果显示,不同听力曲线分型患者在年龄、高血压和脑梗塞亚组间无显著差异,这与先前研究假说不一致。考虑:本次研究纳入患者年龄区间为 30~60 岁且患者高血压病程均较短,而合并脑梗死病史患者多经系统治疗取得了较好的康复故其血液循环状况可能处在较好水平进而亚组间未表现出显著差异,而糖尿病组间存在显著差异,这可能此类患者常常存在脂质代谢异常同时持续的高血糖水平可导致耳内微循环障碍,进而导致患者合并 SHL 风险升高^[18,19]。这预示着临床可重点关注 SHL 患者的基础疾病情况,并针对其合并的基础疾病特征和听力曲线分型结果制定适当的治疗方案^[20-22]。本次研究结果显示,SHL 患者听力曲线分型与其听阈水平和侧别、性别、糖尿病、耳鸣眩晕、耳闷胀感密切相关。多元线性回归结果显示,耳鸣、眩晕、耳闷胀感、听阈水平、侧别是影响突发性耳聋患者听力曲线分型的独立危险因素,证实不同听力曲线分型 SHL 患者间存在较大的异质性,而不同听力曲线分型 SHL 患者间的异质性可能是诱发合并症状并影响临床疗效及预后的重要因素。

平坦下降型患者临床特征无显著差异,而听力降低多处于

中度和重度水平。考虑临床可针对此类型患者调整给药策略,以改善患者听力为主要目标以尽快促进患者听力水平改善^[23]。低频下降型患者听力降低多处于轻度和正常水平,且在伴耳鸣患者中发生风险升高。考虑在此类患者中听力损伤多较轻,临床需综合考虑患者耳鸣病情并对其合并耳鸣问题采取积极的干预策略介入,以降低因合并症问题导致的 SHL 病情治疗效果不佳的问题^[24,25]。高频下降型患者听力降低多处于正常和轻度水平,且在伴耳鸣和耳闷胀感患者中发生风险升高。考虑下降型患者病变部位主要在蜗底,而蜗底部位血流代谢水平较高,故此类型患者亦因局部血液循环不佳而诱发耳闷胀感和耳鸣问题,临床针对此类型患者可对导致病变部位血循环障碍的诱因进行分析,并针对此诱因开展针对性干预以促进临床治疗效果的提高^[26,27]。全聋型患者听力降低多处于极重度水平,且在伴耳鸣、耳闷胀感、眩晕、糖尿病患者中发生风险明显更高。考虑该类分型患者多因蜗轴螺旋动脉或耳蜗总动脉的血管栓塞而致病,故患者多表现为听力严重损伤且临床疗效较差,针对此类型患者可积极对其合并疾病进行干预,如合并糖尿病者采取积极的控制血糖和耳鸣、耳闷胀感、眩晕者进行积极的症状控制,进而从减轻疾病危险因素和诱发合并症状的多角度促进患者病情转归,并最终达到综合改善患者病情的目标^[28-30]。

综上所述,突发性耳聋不同听力曲线分型患者的听阈水平和临床特征存在较大差异,且同一听力曲线分型患者的临床特征和听阈水平亦存在较大异质性,故临床可深入考虑患者的个体特征因素进而给予精准治疗以提高临床疗效并改善患者预后。然而,本次研究未对患者临床治疗后情况进行进一步分析,故今后研究中仍需进一步开展试验予以论证。

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