

诺尔康文摘

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双侧人工耳蜗植入专题

浙江诺尔康神经电子科技股份有限公司
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文献摘要

Stable benefits of bilateral over unilateral cochlear implantation after two years: A randomized controlled trial.

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Abstract

To investigate hearing capabilities and self-reported benefits of simultaneous bilateral cochlear implantation (BiCI) compared with unilateral cochlear implantation (UCI) after a 2-year follow-up and to evaluate the learning effect of cochlear implantees over time. Multicenter randomized controlled trial. Thirty-eight postlingually deafened adults were included in this study and randomly allocated to either UCI or simultaneous BiCI. Our primary outcome was speech intelligibility in noise, with speech and noise coming from straight ahead (Utrecht-Sentence Test with Adaptive Randomized Roving levels). Secondary outcomes were speech intelligibility in noise with spatially separated sources, speech intelligibility in silence (Dutch phoneme test), localization capabilities and self-reported benefits assessed with different quality of hearing and quality of life (QoL) questionnaires. This article describes the results after 2 years of follow-up. We found comparable results for the UCI and simultaneous BiCI group, when speech and noise were both presented from straight ahead. Patients in the BiCI group performed significantly better than patients in the UCI group, when speech and noise came from different directions ($P = 0.01$). Furthermore, their localization capabilities were significantly better. These results were consistent with patients' self-reported hearing capabilities, but not with the questionnaires regarding QoL. We found no significant differences on any of the subjective and objective reported outcomes between the 1-year and 2-year follow-up. This study demonstrates important benefits of simultaneous BiCI compared with UCI that remain stable over time. Bilaterally implanted patients benefit significantly in difficult everyday listening situations such as when speech and noise come from different directions. Furthermore, bilaterally implanted patients are able to localize sounds, which is impossible for unilaterally implanted patients. .

Article source:

Van Z A, Smulders Y E, Stegeman I, et al. Stable benefits of bilateral over unilateral cochlear implantation after two years: A randomized controlled trial.[J]. Laryngoscope, 2017, 127(5):1161.

参考译文：

术后两年双侧优于单侧人工耳蜗植入——双侧稳定收益：随机对照试验

van Zon A¹, Smulders YE¹, Stegeman I¹, Ramakers GG¹, Kraaijenga VJ¹, Koenraads SP¹, Zanten GA¹, Rinia AB², Stokroos RJ³, Free RH⁴, Frijns JH⁵, Huinck WJ⁶, Mylanus EA⁶, Tange RA¹, Smit AL¹, Thomeer HG¹, Topsakal V¹, Grolman W¹

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【摘要】

为了评估术后2年随访时双侧人工耳蜗植入相对于单侧人工耳蜗植入的听觉能力和患者自述收益，以及植入者随着时间的学习效果，本研究进行了多中心随机对照实验，共纳入38例成人语后聋患者并随机分配为单侧或同期双侧植入。主要疗效指标是噪声下的言语可懂度，言语和噪声信号均来自正前方（使用自适应随机调整水平的Utrecht句子测试）；次要疗效指标为来源于不同方向的噪声下的言语可懂度，安静环境下的言语可懂度（荷兰语音素测试），声源定位能力，以及听声质量与生活质量自我评价问卷。本研究描述了术后2年的随访结果。研究发现当言语和噪声来自正前方时，单侧和双侧植入者的测试结果相似；当言语和噪声来自不同方位时，双侧植入组的效果显著好于单侧植入组（ $P < 0.01$ ），并且他们的定位能力也显著较好。这些结果与植入组的听声质量的自我评价一致，然而生活质量问卷结果并未体现双侧植入和单侧植入的区别。我们发现术后1年和术后2年的主观和客观评价结果之间均没有显著差别。这项研究结果表明双侧植入相对于单侧植入的优势显著，在复杂的日常听声环境中（例如当言语和噪声来自不同方位）双侧植入者收益更显著。此外，双侧植入者能够进行声源定位，而单侧植入者无法进行声源定位。

【文献来源】

Van Z A, Smulders Y E, Stegeman I, et al. Stable benefits of bilateral over unilateral cochlear implantation after two years: A randomized controlled trial.[J]. Laryngoscope, 2017, 127(5):1161.

Bilateral cochlear implantation in children: a systematic review and best-evidence synthesis.

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Abstract

Objectives/hypothesis: To evaluate the effectiveness of bilateral cochlear implantation over unilateral implantation in children with sensorineural hearing loss.

Data sources: Pubmed, Embase, and Web of Science.

Review methods: All studies comparing a bilateral cochlear implant group with a unilateral implant group were included.

Results: Twenty-one studies compared a bilateral cochlear implant group with a unilateral group. No randomized trials were identified. Due to the clinical heterogeneity, statistical pooling was not feasible and a best-evidence synthesis was performed. The results of this best-evidence synthesis indicate the positive effect of the second implant for especially sound localization and possibly for preverbal communication and language development. There was insufficient evidence to make a valid comparison between bilateral implantation and a bimodal fitting.

Conclusion: Although randomized trials are lacking, the results of our best-evidence synthesis indicate that the second cochlear implant might be especially useful in sound localization and possibly also in language development.

Key Words: Cochlear implantation; best-evidence synthesis; bilateral; bimodal; deafness; hearing loss; systematic review; unilateral implantation; best-evidence synthesis; bilateral; bimodal; deafness; hearing loss; systematic review; unilateral.

Article source:

Lammers M J, Gijbels D H, Pourier V E, et al. Bilateral cochlear implantation in children: a systematic review and best-evidence synthesis[J]. Laryngoscope, 2014, 124(7):1694.

参考译文:

儿童双侧人工耳蜗植入：系统综述与最佳证据整合

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【摘要】

目的:

评价感音神经性聋儿童双侧人工耳蜗植入相对于单侧人工耳蜗植入的效果。

数据来源:

Pubmed、Embase、Web of Science。

方法综述:

纳入比较双侧人工耳蜗和单侧人工耳蜗植入效果的所有研究。

结果:

共纳入21项比较双侧人工耳蜗植入和单侧人工耳蜗植入效果的研究，这些研究中没有随机对照研究。由于临床异质性不适合进行统计整合，我们采用了最佳证据整合的统计方法。最佳证据整合结果表明，第二侧植入的人工耳蜗在特定的声源定位和语言沟通和语言发展方面发挥了积极作用。然而在双侧植入和双模式听声之间缺乏有效的比较数据。

结论:

尽管缺少随机对照试验，但是我们的最佳证据整合结果仍然表明第二侧植入的人工耳蜗在声源定位以及语言发育方面效果显著。

【关键词】 人工耳蜗植入；最佳证据整合；双侧；双模式；耳聋；听力损失；系统评价；单侧。

【文献来源】

Lammers M J, GJ V D H, Pourier V E, et al. Bilateral cochlear implantation in children: a systematic review and best-evidence synthesis[J]. Laryngoscope, 2014, 124(7):1694.

Sequential bilateral cochlear implantation in the adolescent population.

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Abstract

Objectives: To examine the variables affecting outcomes for sequential bilateral cochlear implantation patients in the adolescent population.

Study design: Retrospective chart review at tertiary care center.

Methods: Main outcome measures were open set speech recognition tests at the word (Consonant-Nucleus-Consonant/Phonetically Balanced Kindergarten List Test [CNC/PBK]) and sentence levels in noise (Hearing in Noise Test-Noise [HINT-N]) in different test conditions with respect to the age at first and sequential implantation, as well as the interval between implants.

Results: Despite a mean age at sequential implantation of 13.5 years, sequential bilateral implanted adolescents revealed significant improvement in the sequential cochlear implant (CI2) ear. The mean time interval between implants was 8.2 years. A wide range of performance was noted, and age at implantation and interval between first cochlear implant (CI1) and CI2 did not predict outcome. Mean CNC/PBK score with CI1 alone was 83.0%, with the CI2 alone was 56.5%, and with bilateral implants was 86.8%. Sentence scores (HINT-N) were 89.5% for CI1, 74.2% for CI2, and 94.4% for bilateral CI condition. The clinical relevance of these enhanced perception abilities requires attention to individual device use, performance with the first implant, and subjective benefits reported by patients.

Conclusions: Bilateral sequential cochlear implantation leads to improved speech perception in the adolescent population and should be considered in this population, even after a long period of deafness and despite a prolonged interval between implants. Numerous factors affect the ability to predict performance, but age at implantation and interimplant interval were not correlated with performance measures. Extensive preoperative counseling and individualized evaluation are critical to ensure that patients and families understand the range of possible outcomes.

Key Words: Adolescent, pediatric cochlear implants; bilateral; sequential.

Article source:

Friedmann D R, Green J, Fang Y, et al. Sequential bilateral cochlear implantation in the adolescent population.[J]. Laryngoscope, 2015,

125(8):1952-8.

参考译文：

青少年人群中相继双侧人工耳蜗植入术

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【摘要】

目的：探讨影响青少年相继双侧人工耳蜗植入患者预后的因素。

实验设计：在三级护理中心进行回顾性分析。

方法：主要测试指标为不同测试条件下（第一次、第二次植入以及相继植入时间间隔）的开放式言语测试，包括字词（CNC/PBK）和噪声句子水平（HINT-N）。

结果：尽管第二侧人工耳蜗植入的平均年龄为13.5岁，相继双侧人工耳蜗植入的青少年植入者反映第二侧植入人工耳蜗（CI2）后听声有显著改善。本研究中相继植入的平均时间间隔为8.2年。我们发现植入者间听声效果差异较大，并且植入年龄和相继植入时间间隔不能预测植入效果。使用第一侧人工耳蜗（CI1）的CNC/PBK字词的 average 得分为83.0%，使用第二侧人工耳蜗（CI2）的CNC/PBK的平均得分为56.5%，使用双侧人工耳蜗的CNC/PBK的平均得分为86.8%。句子测试的得分：第一侧人工耳蜗为89.5%，第二侧人工耳蜗为74.2%，双侧人工耳蜗为94.4%。双侧人工耳蜗收益需要注意个体人工耳蜗设备的使用、第一侧植入效果、患者报告的主观收益。

结论：双侧相继人工耳蜗植入可以改善青少年人群的言语感知，因此双侧植入应该考虑这个群体，即使耳聋时间较长或者相继人工耳蜗植入间隔时间长，这种改善仍然能够得以体现。影响预后表现的因素众多，但是植入年龄和相继植入人工耳蜗的时间间隔和植入效果之间无相关性。充分的术前咨询和个体评估对于患者和家属事先了解可能出现的结果非常重要。

【关键词】 青少年；儿童人工耳蜗植入；双侧；相继。

【文献来源】

Friedmann D R, Green J, Fang Y, et al. Sequential bilateral cochlear implantation in the adolescent population.[J]. Laryngoscope, 2015, 125(8):1952-8.

Bilateral cochlear implantation for hearing-impaired children: criterion of candidacy derived from an observational study.

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Abstract

Objectives: Policy-makers have struggled to define the minimum degree of hearing impairment at which children should be offered cochlear implants rather than the less invasive alternative of acoustic hearing aids. This study compared outcomes for children with bilateral cochlear implants and children with bilateral hearing aids, to determine a criterion of candidacy for pediatric bilateral cochlear implantation.

Design: This observational study measured the listening skills of children who received routine audiological care in the United Kingdom. Participants were recruited from hospitals, educational services, and charities. Eligibility criteria included a diagnosis of hearing impairment before 31 months of age and pure-tone thresholds greater than or equal to 50 dB HL at 2 and 4 kHz bilaterally. Seventy-one children participated, aged 46 to 86 months (mean 64 months). Twenty-eight children used bilateral implants provided in a simultaneous surgery; 43 used bilateral digital hearing aids. The two groups of children were demographically similar in variables that predict outcomes for children with hearing impairment. Children's ability to understand speech was measured using closed-set tests of word discrimination in three conditions: in quiet, in pink noise, and in two-talker babble. For each listening test, an actuarial method was used to compare the distribution of scores from children with cochlear implants and children with hearing aids. The aim was to calculate the unaided pure-tone average (PTA) hearing level at which a child has odds of 4:1 of a better outcome with implants than with hearing aids. The PTA associated with odds of 4:1 has been used previously to define criteria of candidacy for implantation. The main analyses used a four-frequency PTA (mean of unaided thresholds at 0.5, 1, 2, and 4 kHz in the better-hearing ear). Additional analyses used a three-frequency PTA (0.5, 1, and 2 kHz) and two-frequency PTA (2 and 4 kHz).

Results: Odds of 4:1 of a better outcome with implants were associated with a four-frequency PTA of 79, 86, and 76 dB HL for tests of word discrimination in quiet, noise, and babble, respectively. The mean of these three estimates is 80 dB HL. It can be difficult to measure a four-frequency PTA in young children, but a two-frequency PTA typically can be measured. Odds of 4:1 were associated with a two-frequency PTA of 83, 92, and 80 dB HL for tests of word discrimination in quiet, noise, and babble, respectively. The mean of these three estimates is 85 dB HL.

Conclusions: Children with an unaided four-frequency PTA of 80 dB HL or poorer in both ears should be considered candidates for bilateral cochlear implantation. In cases where a four-frequency PTA cannot be measured, the criterion of candidacy should be a two-frequency PTA of 85 dB HL or poorer in both ears. If adopted by policy-makers, these recommendations would expand the provision of cochlear implants among children in England and Wales.

Article source:

Lovett R E, Vickers D A, Summerfield A Q. Bilateral cochlear implantation for hearing-impaired children: criterion of candidacy derived from an observational study.[J]. Ear & Hearing, 2015, 36(1):14-23.

参考译文：

听障儿童双侧人工耳蜗植入：基于观察研究的候选标准

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【摘要】

目标：界定听障儿童应该进行人工耳蜗植入而非选择助听器的最低听损程度，对于标准制定者来说一直是个难题。本研究通过比较双侧人工耳蜗植入儿童与双侧助听器助听儿童的效果来确定儿童双侧植入人工耳蜗的候选标准。

实验设计：这项观察研究测试了在英国接受常规听力学康复的儿童听觉能力，入选的标准包括31个月之前的听力学诊断和双侧2 kHz和4 kHz处纯音听阈大于50dB HL。共纳入71例儿童，平均年龄64个月，年龄范围46-86个月。28例儿童同期植入了双侧人工耳蜗，43例使用双侧数字助听器。在影响听障儿童预后效果的变量方面，两组儿童的基本条件相似。使用安静、粉红噪声和双人言语噪声三种条件下的封闭式词语识别测试来测试儿童的言语理解能力，每项听力测试均使用精算方法比较佩戴人工耳蜗组和佩戴助听器组儿童得分的分布，其目的为计算人工耳蜗植入儿童的效果和助听器儿童的效果的优势比为4: 1时的裸耳纯音平均听阈（这种方法之前也曾应用于人工耳蜗植入标准的计算）。主要使用4频率（好耳在0.5、1、2、4 kHz的平均裸耳听阈）纯音平均听阈进行分析，其次使用3频率（0.5、1、2 kHz）纯音平均听阈和2频率（2、4 kHz）纯音平均听阈进行分析。

结果：双侧裸耳4频率纯音听阈为80dB HL或者更差的儿童应该被视为双侧人工耳蜗植入的候选者。在不能测量4频率PTA的情况下，候选标准应是双侧2频率PTA为85dB HL或更差。如果标准制定者能够采纳这些建议，这些建议将扩大英国和威尔士地区的儿童人工耳蜗植入的适应症范围。

【文献来源】

Lovett R E, Vickers D A, Summerfield A Q. Bilateral cochlear implantation for hearing-impaired children: criterion of candidacy derived from an observational study.[J]. Ear & Hearing, 2015, 36(1):14-23.

Bilateral cochlear implantation.

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Otolaryngologic Clinics of North America.

Abstract

Cochlear implantation (CI) is the standard of care for the treatment of children and adults with bilateral severe-to-profound sensorineural hearing loss. Because the ultimate and continuous goal of CI teams is to improve patient performance, a potential method is bilateral CI. The potential benefits of bilateral CI include binaural summation, squelch, equivalent head shadow for each ear, improved hearing in noise, sound localization ability, and spatial release from masking. The potential disadvantages include additional or prolonged surgical procedure, unproven cost/benefit profile, and the elimination of the ability to use future technologies and/or medical therapies in the implanted ear.

Key Words: Bilateral; cochlear implantation.

Article source:

Wanna G B, Gifford R H, Mcrackan T R, et al. Bilateral cochlear implantation.[J]. Otolaryngologic Clinics of North America, 2012, 45(1):81.

参考译文:

双侧人工耳蜗植入术

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北美耳鼻喉科诊所

【摘要】

人工耳蜗 (CI) 是双侧重度至极重度感音神经性聋儿童和成人的标准医学干预手段。由于人工耳蜗的终极和长期目标是改善听障患者的听力表现，因此双侧人工耳蜗是一种潜在的干预方法。双侧的潜在收益包括双耳整合效应、噪声抑制效应、头阴影效应，从而提高噪声下的听力、声源定位能力和从掩蔽中空间释放的效应；潜在的弊端包括额外或延长的外科手术时间、未经证实的成本/收益情况、以及丧失了使用未来技术或药物治疗人工耳蜗植入耳的能力。

【文献来源】

Wanna G B, Gifford R H, Mcrackan T R, et al. Bilateral cochlear implantation.[J]. Otolaryngologic Clinics of North America, 2012, 45(1):81.

The effect of device use after sequential bilateral cochlear implantation in children: An electrophysiological approach.

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Abstract

Objectives: In many studies evaluating the effect of sequential bilateral cochlear implantation in congenitally deaf children, device use is not taken into account. In this study, however, device use was analyzed in relation to auditory brainstem maturation and speech recognition, which were measured in children with early-onset deafness, 5-6 years after bilateral cochlear implantation. We hypothesized that auditory brainstem maturation is mostly functionally driven by auditory stimulation and is therefore influenced by device use and not mainly by inter-implant delay.

Methods: Twenty-one children participated and had inter-implant delays between 1.2 and 7.2 years. The electrically-evoked auditory brainstem response was measured for both implants separately. The difference in interaural wave V latency and speech recognition between both implants were used in the analyses. Device use was measured with a Likert scale.

Results: Results showed that the less the second device is used, the larger the difference in interaural wave V latencies is, which consequently leads to larger differences in interaural speech recognition.

Conclusions: In children with early-onset deafness, after various periods of unilateral deprivation, full-time device use can lead to similar auditory brainstem responses and speech recognition between both ears. Therefore, device use should be considered as a relevant factor contributing to outcomes after sequential bilateral cochlear implantation. These results are indicative for a longer window between implantations in children with early-onset deafness to obtain symmetrical auditory pathway maturation than is mentioned in the literature. Results, however, must be interpreted as preliminary findings as actual device use with data logging was not yet available at the time of the study.

Key Words: Bilateral cochlear implants; Device use; Electrically evoked auditory brainstem response; Pediatric; Speech recognition

Article source:

Sparreboom M, Beynon A J, Snik A F, et al. The effect of device use after sequential bilateral cochlear implantation in children: An electrophysiological approach[J]. International Journal of Pediatric Otorhinolaryngology, 2016, 86:161-166.

参考译文:

儿童双侧相继人工耳蜗植入的术后设备使用效果：电生理学方法

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【摘要】

目的: 在很多评估先天性聋儿童相继双侧人工耳蜗植入的术后效果的研究中, 并没有考虑人工耳蜗设备使用这一因素。本研究通过测试双侧植入人工耳蜗的早发性耳聋儿童术后5-6年的设备使用情况, 分析了人工耳蜗设备使用与听觉脑干成熟和言语识别的联系。我们提出的假说是听觉脑干成熟主要由听觉刺激驱动, 因此受设备使用的影响, 而不是主要受植入时间间隔的影响。

方法: 21例儿童参与了本研究, 植入时间间隔范围为1.2-7.2年, 并分别测试了使用两侧人工耳蜗时的脑干听觉诱发电位, 并分析了两侧人工耳蜗的耳间V波潜伏期差异和言语识别差异, 并使用Likert量表记录了设备使用情况。

结果: 结果显示第二侧人工耳蜗使用的越少, 耳间V波潜伏期差异越大, 相应地导致耳间言语识别差异越大。

结论: 在经历不同的相继植入时间间隔的早发性耳聋患儿中, 全天使用人工耳蜗可以使得双侧产生相似的听觉脑干反应和双耳之间的言语识别。因此, 双侧相继人工耳蜗植入术后应该考虑人工耳蜗设备使用是影响术后效果的一个相关因素。这些结果表明, 在早发性耳聋儿童中, 仍然能够获得对称性听觉通路成熟的相继植入时间间隔较以往文献提到的要长。然而, 由于在本研究开展时数据日志功能并未应用于临床, 因此本研究的结果仅为初步发现, 需要今后进一步深入的研究。

【关键词】 双侧人工耳蜗植入; 设备使用; 电诱发听觉脑干反应; 儿童; 言语识别.

【文献来源】

Sparreboom M, Beynon A J, Snik A F, et al. The effect of device use after sequential bilateral cochlear implantation in children: An electrophysiological approach[J]. International Journal of Pediatric Otorhinolaryngology, 2016, 86:161-166.

Bilateral sequential adult cochlear implantation: who should receive priority in the context of a constrained health care system?

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Abstract

Resource allocation decisions have become increasingly necessary as the cost of health care habitually increases. Bilateral (second side) adult cochlear implantation (CI) is an example of a novel technology with accruing evidence of benefit, yet expense has limited universal employ. Currently at our centers, bilateral implantation is only provided under research protocol. In this article, we discuss the need for a principled approach concerning the distribution of a second device, both during this period of investigation and if ultimately an insured service. Allocation strategies, while extensively addressed in some arenas, have yet to be developed for second-side sequential adult CI. We advocate that physicians must assume an explicit role when both caring for individual patients as well as administering health care programs. We review social justice theories that inform resource allocation macrodecisions, and include a defence of age-based considerations. Our approach to patient selection for adult second-side CI sequentially considers clinical criteria (directly addressed in the article), a willingness to participate in rigorous research, and a 65 year cut-off. Ultimately, we employ random blinded selection for allocating bilateral CI among the remaining similarly situated individuals. This approach functions impartially and in a manner that is transparent for both patient and physician.

Article source:

Forzley B, Chen J, Nedzelski J, et al. Bilateral sequential adult cochlear implantation: Who should receive priority in the context of a constrained health care system?[J]. *Laryngoscope*, 2013, 123(12):3137-40.

参考译文:

成人双侧相继人工耳蜗植入：在有限的卫生保健系统中谁应该获得优先救助？

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【摘要】

随着医疗费用的不断增加，资源分配决策变得越来越有必要。双侧成人人工耳蜗植入术是一种已证实能够增加收益的新技术，但是昂贵的费用限制了其普遍应用。目前在我们中心，双侧植入术只在实验研究中进行。在本研究中，我们探讨了进行第二侧人工耳蜗设备植入手术的指导原则，这一指导原则应该贯彻前期调查和最终医保服务。分配策略尽管在一些领域已广泛应用，然而还没有应用于成人第二侧人工耳蜗的植入手术。我们倡议医生不论在为患者提供服务时还是在管理医疗健康项目中都应该起到明确的作用。我们综述了宏观信息资源配置的社会公正理论，并考虑了年龄因素。对于成人双侧相继人工耳蜗植入手术，我们考虑了临床标准，参与严格研究的意愿，年龄则截止到65岁。最终我们采用了随机盲选法选择在剩余的相似患者中分配双侧人工耳蜗植入。这种方法是公正的，在一定程度上对医生和患者都是透明的。

【文献来源】

Forzley B, Chen J, Nedzelski J, et al. Bilateral sequential adult cochlear implantation: Who should receive priority in the context of a constrained health care system?[J]. Laryngoscope, 2013, 123(12):3137-40.

人工耳蜗双侧植入的优势

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【摘要】

正常人群依赖双侧听觉。相对于单侧听觉，双侧听觉优势如下：噪音背景下更佳的言语识别能力，更佳的高频信号识别能力及声源定位能力。在同一环境中，双耳听力显然比单耳听力更具优势，不需要特别的注意力就能达到随意畅通的目的。在通常情况下，双耳的”立体声”听力要比单耳的”单声道”听力更省力。

【关键词】人工耳蜗植入；识别能力；听觉效果；定位能力；儿童；双侧；正常人群；残余听力；优势；感音神经性聋；

文章来源: 吴佩娜. 人工耳蜗双侧植入的优势[J]. 人人健康, 2013(21).

人工耳蜗植入的双耳聆听研究进展

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【摘要】

随着医学技术的发展、耳蜗技术的日益成熟及人工耳蜗植入标准的逐渐放宽，已使越来越多双侧极重度聋患儿能与人进行正常口语交流。人工耳蜗植入后的双侧干预模式有一侧人工耳蜗加对侧助听器及双侧人工耳蜗模式，该文在回顾近年文献的基础上，对双耳聆听的生理物理基础、耳蜗植入患者双耳聆听的模式选择及现有模式中双耳聆听存在的技术问题等方面作一综述。

【关键词】人工耳蜗植入；双侧耳蜗植入；双模刺激；

文章来源: 彭璐. 人工耳蜗植入的双耳聆听研究进展[J]. 中国临床新医学, 2016, 9(6):547-550.

双侧人工耳蜗植入者在噪声环境下的言语辨别能力

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【摘要】

目的: 探讨双侧人工耳蜗植入患者的言语辨别能力。**方法:** 用2例双侧人工耳蜗植入者比较双侧与单侧人工耳蜗在不同信噪比下对广东话声调的辨别能力。结果 在+15, +10和+5的信噪比下, 双侧人工耳蜗的平均能力为96%, 92%和88%, 而左耳及右耳单侧人工耳蜗的平均成绩为86%, 83%和74%。在0, -5, -10及-15的信噪比下, 单侧人工耳蜗的平均能力近于0%, 而双侧人工耳蜗的平均成绩为80%, 72%, 68%和54%。结论 在不同信噪比下, 双侧人工耳蜗植入更有助于提高对广东话声调的辨别能力, 进一步证明了双侧人工耳蜗植入患者运用双耳听力的优势。

【关键词】 听力障碍; 耳蜗植入; 言语识别测验; 噪声;

文章来源:

区建国, 金昊, 许由, 等. 双侧人工耳蜗植入者在噪声环境下的言语辨别能力[J]. 中华耳鼻咽喉头颈外科杂志, 2001, 36(6):433-435.

双侧同期人工耳蜗植入效果分析

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【摘要】

目的 使用听觉和言语问卷分级的方法评估双侧耳人工耳蜗同期植入患者的听觉与言语康复疗效。方法 依据诺丁汉大学提出的听觉行为分级标准(categories of auditory performance, CAP)和言语可懂度分级标准(speech intelligibility rating, SIR), 截止到2007年5月, 对5例双耳同期人工耳蜗植入患者家长与仅单侧人工耳蜗植入对照组家长进行问卷调查。结果 五例双侧人工耳蜗同期植入患者的CAP分别为:8、7、7、6、3, SIR分别为:5、5、4、2、1。

【关键词】 双侧; 人工耳蜗; 同期植入。

文章来源: 韩德民, 李永新, 郑军, 等. 双侧同期人工耳蜗植入效果分析[C]. 中华医学会第十次全国耳鼻咽喉-头颈外科学术会议论文汇编(上). 2007.

双侧人工耳蜗植入术后言语识别效果的评估

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【摘要】

目的 评估双侧人工耳蜗植入者汉语普通话短句、双音节词单音节词及汉语声调的识别效果,探索双侧人工耳蜗植入者双耳听觉产生的机制及对言语识别率的影响。**方法** 选取双侧人工耳蜗植入患者6人,自制问卷收集受试者的基本信息并评估他们的主观听觉状况。首先测试受试者在使用双侧人工耳蜗(BCI)、单独使用一侧人工耳蜗(RCI/LCI)的听阈,随后测试他们在BCI和RCI/LCI两种听觉模式下的七音节短句、双音节词、声调、韵母、声母识别率,测试背景环境包括安静环境和嘈杂语噪声环境,言语信号强度为65dB SPL,固定信噪比为+10 dB SPL。随后将BCI和RCI/LCI两种听觉模式下的识别效果进行比较。**结果** 除噪声状态下韵母识别测试中其余测试结果均为BCI言语识别率得分高于RCI/LCI。**结论** 对于符合双侧人工耳蜗植入术适应证标准的患者而言,双侧植入人工耳蜗可以在不同程度上提高安静和噪声环境下的短句、双字词、声母、韵母及声调的识别率,降低其声场听阈。

【关键词】 人工耳蜗; 双耳听觉; 言语识别.

文章来源: 崔丹默,王顺成,石颖,等. 双侧人工耳蜗植入术后言语识别效果的评估[J]. 中华耳科学杂志, 2013(2):181-184.

双侧人工耳蜗植入对儿童听觉识别能力影响的个案研究

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【摘要】

目的: 考察双侧和单侧配戴人工耳蜗对儿童听觉识别的影响。**方法:** 本研究采用实验法和观察法。通过实验法在安静环境下使用听觉评估导航系统对幼儿的双耳和单耳进行测试。识别材料主要选择韵母识别、声母识别、单音节词声调识别、双音节词识别、短句识别。言语信号的强度为70dB SPL。通过观察法观察儿童在日常生活中双耳和单耳的表现,考察双耳与单耳在日常生活中的差异。**结果** 实验结果表明,在声调识别和双音节词识别方面,该儿童识别率都达到100%。在韵母方面,双侧略好于单侧。在声母识别和短句识别方面,双侧人工耳蜗的语音识别率远高于单侧。在日常生活中,儿童双侧配戴人工耳蜗比单侧的言语识别、听觉定向都要好。**结论** 双侧人工耳蜗提高了患者的言语识别率,尤其体现在声母识别和短句识别方面。

结论: 双侧人工耳蜗提高了患者的言语识别率,尤其体现在声母识别和短句识别方面。

【关键词】 人工耳蜗; 听觉识别; 双耳听觉;

文章来源: 刘巧云,黄昭鸣,孙喜斌,等. 双侧人工耳蜗植入对儿童听觉识别能力影响的个案研究[J]. 中国听力语言康复科学杂志, 2008(1):51-53.

双侧人工耳蜗植入患者早期言语识别率的特点

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【摘要】

目的 通过对两例双侧人工耳蜗植入患者早期言语识别率的分析,探讨双侧人工耳蜗植入对言语识别率的影响及中枢对双侧信号的处理机制。**方法** 2例先天性聋的双侧人工耳蜗植入的患儿参与测试。第二次植入术后一个月开机时,分别测定双耳、左耳、右耳对数字、单字词、双字词的言语识别率。**结果** 新近植入侧单独开机时,各种方法下的言语识别率均为零。分别采用数字、单字词、双字词测试获得的言语识别率各不相同,其差异有显著性($p < 0.01$)。双侧同时开机可以明显提高患儿对双字词的识别率,但对数字和单字词的影响不大。在对1例患儿不同时期的言语识别率的观察中,随着双侧人工耳蜗使用时间的延长,无论先植入耳、后植入耳及双耳的言语识别率均有所提高。**结论** 对数字、单字词、双字词的中枢识别机制有所不同,每一种单独方法都不能完整反映受试者的实际言语听觉能力。证实了双侧人工耳蜗植入术可以明显提高患者的言语识别率;接受双侧人工耳蜗植入术的患者双耳听力效应的重建需要一个重新学习和适应的过程。而耳蜗植入后听力训练则在其中起着极为重要的作用。

【关键词】 耳蜗植入; 言语识别率.

文章来源: 夏瑞明, 余力生, 马鑫. 双侧人工耳蜗植入患者早期言语识别率的特点[J]. 中国听力语言康复科学杂志, 2003(1):32-33.

汉语语后聋患者双侧人工耳蜗植入一例

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【摘要】

人工耳蜗主要是帮助通过助听器得不到有效补偿,不能满足听觉和言语交流目的的重度听力障碍人群。对于健听者,双耳聆听较单耳聆听时具有声音信号更清晰饱满,提高噪声环境时的交流能力和对声源定位等优点。然而目前绝大多数人工耳蜗是单侧植入,且非植入耳使用助听器效果很差。因此如何进一步提高言语交流能力,特别是在噪声环境时及对声源定位等是亟待解决的问题。我们通过对1例语后聋患者双侧人工耳蜗植入后的言语识别研究,试图阐述汉语使用者双侧人工耳蜗植入后的编程调试,对可能收益及其机制进行分析。

【关键词】 人工耳蜗植入; 助听器; 噪声环境; 信噪比; 声源定位; 受试者; 声音信号; 双侧; 交流能力; 言语识别

文章来源: 魏朝刚, 曹克利, 曾凡钢, 等. 汉语语后聋患者双侧人工耳蜗植入一例[J]. 中华耳鼻咽喉头颈外科杂志, 2007, 42(6):468-469.

双侧人工耳蜗植入技术

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【摘要】

进入21世纪以来,人工耳蜗植入术已经让千千万万的聋人重返有声世界,而双侧人工耳蜗植入技术的开展,则让人工听觉更加精细完美。国外双侧人工耳蜗植入技术的研究已有近20年的时间,但国内相关技术的系统报道尚罕见。本文通过对双侧人工耳蜗植入技术的一些特点、热点的介绍,向人们展示这一新技术的发展现状。

【关键词】 耳蜗(Cochlear); 耳蜗植入术(Cochlear Implantation).

文章来源:

马泓智, 李永新, 韩德民. 双侧人工耳蜗植入技术[J]. 国际耳鼻咽喉头颈外科杂志, 2007, 31(6):363-365.

双侧植入人工耳蜗对儿童选择性听取能力影响的个案研究

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【摘要】

目的 探讨双侧人工耳蜗植入儿童在噪音环境下的选择性听取能力。方法 采用实验法,研究个案在不同信噪比条件(SNR=0, 10, 20)下,单、双侧耳识别双音节词和短句的能力。测试使用计算机导航系统给声。结果 在双音节词识别方面,当SNR=20和SNR=10时,单、双耳的识别率都为100%;但当SNR=0时,单、双耳识别率同时下降,结果较为接近。在短句识别方面,SNR=20和SNR=10时的结果相似,但单、双耳之间的差异较为明显;当SNR=0时,单、双耳识别率同时下降,结果较为接近。结论 双侧人工耳蜗提高了该儿童在背景噪声中的选择性听取技能。SNR=20和SNR=10时,单耳和双耳的选择性听取能力都没有显著差异,但双耳明显好于单耳。在SNR=0时,单耳和双耳的选择性听取能力明显下降,且双耳和单耳差异缩小。

【关键词】 双侧人工耳蜗; 选择性听取;

文章来源:

刘巧云, 孙喜斌, 张蕾, 等. 双侧植入人工耳蜗对儿童选择性听取能力影响的个案研究[J]. 中国听力语言康复科学杂志, 2009(2):54-56.

词汇

词汇

Bilateral
Asymmetry
Symmetrical
Azimuth
Congenital
Electrophysiological
Horizontal plane
Lateralization
Mismatch
Multiple
Progressive
Pronounced
Reorganization
Sensitive periods
Sequentially
Simultaneously
Subsequently

翻译

双侧
不对称
对称的
方位角
先天性;先天的,天生的
电生理学的
水平面
偏侧性,偏侧优势,偏利
错配,失谐
多重的;复杂的;多功能的
进步的;进行的;
显著的;断然的;强硬的;
重组
敏感期
相继,序贯,从而
同时地
其后,随后,接着

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