

DOI: <https://doi.org/10.36489/saudecoletiva.2021v11i62p5272-5281>

Phonoaudiological findings in Acquired Immunodeficiency Syndrome: integrative review

Hallazgos fonoaudiológicos en el Síndrome de Inmunodeficiencia Adquirida: revisión integrativa

Achados fonoaudiológicos na Síndrome da Imunodeficiência Adquirida: revisão integrativa

ABSTRACT

Objective: to describe the scientific knowledge already produced on the alterations and phonoaudiologic the Acquired Human Immunodeficiency Syndrome. **Methods:** This is an integrative review of the literature, carried out from May to September 2020, in the Public Medicine Library (PubMed) and Latin American and Caribbean Literature in Health Sciences (LILACS) databases via the VHL Virtual Health and Scientific Electronic Library Online (SCIELO) virtual platform, through the descriptors combined by the Boolean operator AND. **Results:** 506 articles were found and of these 22 contemplated the research objectives. **Conclusion:** The patients with Acquired Immunodeficiency Syndrome present speech and hearing alterations that compromise their quality of life.

DESCRIPTORS: AIDS; Dysphagia; Language; Hearing loss; Voice.

RESUMEN

Objetivo: describir el conocimiento científico ya producido sobre las alteraciones y fonoaudiológicas del Síndrome de Inmunodeficiencia Humana Adquirida. **Métodos:** Se trata de una revisión integral de la literatura, realizada entre mayo y septiembre de 2020, en las bases de datos de la Biblioteca Pública de Medicina (PubMed) y de la Literatura Latinoamericana y del Caribe en Ciencias de la Salud (LILACS) por medio de la plataforma virtual de la Biblioteca Virtual en Salud y la Biblioteca Electrónica Científica en Línea (SCIELO) de la BVS, a través de los descriptores combinados por el operador Boolean AND. **Resultados:** Se encontraron 506 artículos y de éstos 22 contemplaban los objetivos de la investigación. **Conclusión:** Los pacientes con el Síndrome de Inmunodeficiencia Adquirida tienen alteraciones del habla y la audición que comprometen su calidad de vida.

DESCRIPTORES: SIDA; Disfagia; Lenguaje; Pérdida de audición; Voz.

RESUMO

Objetivo: descrever os conhecimentos científicos já produzidos sobre as alterações e fonoaudiológicas a Síndrome da Imunodeficiência Humana Adquirida. **Métodos:** Trata-se de uma revisão integrativa da literatura, realizada no mês de maio a setembro de 2020, nas bases de dados Public Medicine Library (PubMed) e Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS) via a plataforma virtual BVS - Biblioteca Virtual em Saúde e Scientific Electronic Library Online (SCIELO), através dos descriptores combinados pelo operador booleano AND. **Resultados:** Foram encontrados 506 artigos e destes 22 contemplavam os objetivos da pesquisa. **Conclusão:** Os pacientes acometidos por Síndrome da Imunodeficiência Adquirida apresentam alterações fonoaudiológicas que comprometem em sua qualidade de vida.

DESCRIPTORIOS: SIDA; Disfagia; Linguagem; Perda auditiva; Voz.

RECEIVED ON: 12/15/2020 APPROVED ON: 01/07/2021

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INTRODUCTION

The Acquired Immunodeficiency Syndrome – AIDS is a chronic infectious disease, which occurs through the action of the Human Immunodeficiency Virus – HIV a specific type of retrovirus that attacks the immune system, destroying T4 lymphocyte CD4 + cell receptors, responsible for cellular immunity, which will result in immunological changes and neurological, physiological and emotional impairment.^{1,2}

HIV infection has a course that can range from the acute phase, characterized by symptoms of a viral infection that includes headache, malaise, fever, adenitis, pharyngitis, rash and myalgia, up to an advanced stage. Thus, it is characterized in three stages: acute retroviral syndrome, asymptomatic chronic infection and symptomatic infection, the most advanced stage of the infection being the Acquired Immunodeficiency Syndrome.^{3,4}

This syndrome was discovered in the 1980s in Brazil and in other countries with evidence of high morbidity and lethality, which led the scientific community to research about the pathology. Initially, it was characterized as a typical male homosexual disease, but the studies showed a pathology that affected both men and women without specificities, which spread rapidly across the continents, characterizing a pandemic

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for that time. This pandemic had two important aspects to be highlighted: the inclusion of a specific group in the epidemiological profile, women, and the problem of maternal-fetal transmission. The forms of transmission of the virus include sexual intercourse, more frequent in the adult population, blood and/or marrow transfusion, shared use of syringes and by vertical transmission. Maternal-fetal transmission through vertical transmission can happen in three moments: due to intrauterine infection, during the gestational period, peripartum infection (during labor) and postpartum, bringing to the infected individual alterations/manifestations considered speech therapy, such as: changes in sensitivity, muscle tone and strength, dysphagia, language changes, hearing loss and vocal changes.^{2,5-7}

In view of this, the present study aims to synthesize and describe the scientific knowledge already produced about the speech disorders and comorbidities related to the Acquired Human Immunodeficiency Syndrome, outlining the care of the speech pathologist, seeking to answer the following question: “What are the speech disorders in Acquired immunodeficiency syndrome?”

METHODS

This is an integrative literature review, carried out from May to September 2020. For the search for the arti-

cles, the descriptors combined with the Boolean operator AND were used in: SIDA AND Disfagia, SIDA AND Linguagem, SIDA AND Perda auditiva and SIDA AND Voz. The search was carried out through the databases of Public Medicine Library (PubMed) and Latin American and Caribbean Literature in Health Sciences (LILACS) via the virtual platform VHL - Virtual Health Library and the Scientific Electronic Library Online (SCIELO).

Original articles (of experimental or observational design), monographs, book chapters and review articles available in full, in Portuguese, over the last 10 years, that included the guiding question were included, and articles that did not answer the research objective were excluded, in English and/or another language, which were not available in full and duplicate studies. The search and selection of articles took place through the recommendations of the PRISMA instrument, in a paired and independent manner by two researchers; it was carried out through a screening of the reading of the titles, abstracts and descriptors, extraction of the articles available for download for full reading, critical analysis of the studies, qualitative synthesis and interpretation of the scientific evidence for writing the review.

RESULTS

The electronic search resulted in 506

articles, after applying the inclusion and exclusion criteria, 23 articles were selected that contemplated the objective of the study. Figure 1 illustrates the search strategy and the articles selected for this review.

DISCUSSION

After reading the articles in full, the data extracted from the selected scientific productions were listed in categories, interpreted and presented descriptively for discussion of the study.

Oral manifestations, eating difficulties and dysphagia

Oral motor changes are characterized by repercussions in the sensitivity, tone and muscle strength of the organs of the stomatoglossognathic system. These changes can cause impairment in the functions of chewing and swallowing, favoring the occurrence of dysphagia. Dysphagia is a symptom secondary to a basic disease that can lead the individual to nasal regurgitation; wet voice; cough and bronchial aspiration of saliva and/or food; which can reflect on food refusal, resulting in malnutrition, dehydration and recurrent pneumonia.⁹⁻¹²

Nutritional deficiencies, such as selenium deficiency, can have a negative impact on the already compromised immune system, increasing susceptibility to opportunistic infections/diseases, Cytomegalovirus and Ventriculoencephalitis, for example, and neoplasms. Cytomegalovirus is an opportunistic

infection whose clinical manifestations consist of neurological, ophthalmological and gastrointestinal syndromes (such as esophagitis, gastritis, enteritis and colitis). Therefore, neoplasms correspond to the main causes of death of these patients.^{4,9,12}

Oral manifestations are the first signs that precede systemic manifestations. Swallowing changes are more common in cases of candidiasis, herpes, Kaposi's sarcoma and aphthous ulcerations.⁴

Changes in the Central Nervous System and language impairment

The selected studies describe the most common findings in children, which, according to Rocha et al., Are: hyporeflexia in the limbs, delayed or delayed neuropsychomotor development, language delay, mental disability and cerebral palsy.¹² No specificity of this correlation was observed in the selected literature in other age groups.

The consequences of the involvement of the Central Nervous System (CNS) in children may be evident from the beginning of the clinical picture or it may take many years for the manifestation to occur. In the early years of the AIDS epidemic, progressive encephalopathy was considered one of the early manifestations of the disease in children, causing deficits in several areas, such as motor, speech, language, memory and learning functions.^{3,13,14,17}

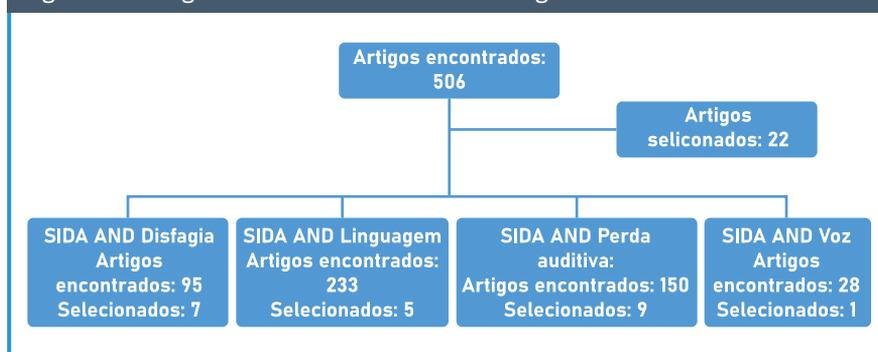
We emphasize that in the selected articles, neurological changes and language impairment were not described in the adult population.

Hearing disorders

The incidence of hearing impairment in adult HIV patients reflects changes of peripheral and/or central origin, while in children they are more peripheral and may be caused by casual infections or opportunistic diseases. These individuals have complaints such as: ear fullness, dizziness, hearing loss, tinnitus, otalgia and otorrhea.^{2,11,13,15}

The first studies attributed senso-

Figura 1: Fluxograma dos resultados da estratégia de busca



rineural deafness in AIDS to multiple causes. The state of immunodeficiency predisposes, in such patients, a series of meningogenic mechanisms capable of causing this type of deafness, among them: cryptococcal, tuberculous, viral, bacterial meningitis; cytomegalovirus (CMV) infection and hepatitis B virus; toxoplasmosis of the CNS. These changes may be due to impairments in the outer, middle and/or inner ear. There are abnormalities in the Brainstem Auditory Evoked Potentials (BAEP) that can be found early, before the clinical appearance of symptoms.^{5,7,16}

Infection by the HIV virus and otoneurological disorders, such as hearing loss, tinnitus and dizziness, have been associated with opportunistic infections, ototoxic drugs and the direct action of the virus in the cochleovestibular system. In research, VIEIRA et al., in 2008, aimed to assess this correlation. 284 medical records were selected, 162 (57%) of patients who used antiretrovirals (study group) and 122 (43%) of patients who were not using this medication (control group). Of the 162 patients in the studied group, 14 (8,6%) reported otoneurological complaints and, of the 122 patients in the control group, seven (5,8%) presented these complaints. For the group that was not being treated, this reasoning suggests that the cause of complaints and otoneurological diseases present in the untreated group would be associated with the action of the virus, since these patients had a higher viral load.¹⁸

But the study found no statistically significant difference between otoneurological complaints in the treated group compared to the untreated group. The dizziness complaint does not seem to have been a problem related to the use of antiretroviral drugs and in relation to the otoneurological diagnosis, the hearing losses of patients not treated with antiretrovirals were triggered by common factors to which the general population is exposed, like cerumen stopper and occupational noise. Thus,

the authors reported that it was not possible to consider the association between exposure to the HIV virus and antiretroviral therapy with ototoxicity.¹⁸

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Meanwhile, subsequent descriptive studies, consider possible the involvement of the inner ear, resulting from the action of the HIV virus and it is mentioned in studies involving patients with AIDS, as well as the hearing impairment

caused by the use of antiretroviral treatment and ototoxic medications, both causing losses sensorineural hearing loss and, consequently, irreversible damage to the inner ear. And in relation to middle ear impairment and, consequently, the presence of conductive or mixed hearing loss, it was reported that this change was due to immunosuppression, which favors the presence of opportunistic infections.¹⁰

Meanwhile, subsequent descriptive studies, consider possible the involvement of the inner ear, resulting from the action of the HIV virus and it is mentioned in studies involving patients with AIDS, as well as the hearing impairment caused by the use of antiretroviral treatment and ototoxic medications, both causing sensorineural hearing loss and, consequently, irreversible damage to the inner ear. And in relation to middle ear impairment and, consequently, the presence of conductive or mixed hearing loss, it was reported that this change was due to immunosuppression, which favors the presence of opportunistic infections.³

Airway infection and vocal disorders

A study by Makar SK et al., Published in 2012, on the voice of children with HIV. The authors investigated audiological, vocal, language and swallowing disorders in children between 4 and 16 years of age. In that study, the vocal assessment was performed using the Buffalo III instrument and 31,34% of vocal alterations were found (rough, breathy and choppy voice), absence of dysarthria and no description of the assessment of vocal abuse. In a later study, the authors also studied changes in voice, dysarthria and oral functions, in 15 male adults, between 18 and 40 years old. Oral reflex functions, breathing, structures of lips, tongue, jaw, soft palate and larynx, speech intelligibility and dysarthria were analyzed. At some point of HIV infection, patients will have an otorhinolaryngological sign or symptom, capable of affecting the larynx and/or the voice.¹¹

As a limitation of the present review, the small number of studies on vocal alterations in AIDS patients that mention vocal quality: loudness, pitch, resonance and other important vocal aspects is pointed out.

CONCLUSION

The selected studies, for the development of the review, showed that the alterations/manifestations of speech-language repercussions in

patients with Acquired Immuno-deficiency Syndrome are related to communication and feeding. With regard to communication, impairment of neurological origin is evidenced, reflecting cognitive degradation, alteration in expressive and comprehensive language with deficit of intellectual capacity and memory; in addition to vocal impairment. Regarding dietary changes, the literature reports opportunistic diseases such as oral and esophageal candidiasis, myopathy, pneu-

monia, tuberculosis, cancer, herpes, dementia, peripheral neuropathy, oral hairy leukoplakia, among other pathologies that are the determinants for triggering dysphagia.^{11,19} This research emphasizes the importance of speech therapy in the multiprofessional team that accompanies AIDS patients, with the speech therapist being the professional trained to act in the face of communicative and dietary manifestations, such as those mentioned in the literature found. ■

REFERENCES

1. Furkim, A M; Capítulo: "Fonoterapia nas Disfagias Orofaríngeas Neurogênicas"; Furkim, A M; Santini, C S; Capítulo: "Disfagia Neurogênica"; MCKAIG T. Neil; Capítulo: "Ausculta- Cervical e Torácica"; GONÇALVES Roberta Silva; Capítulo: "Disfagia Neurogênica em Adultos: Uma proposta pra avaliação clínica"; FURKIM, Ana Maria; SANTINI, Célia Salviano Disfagia Orofaríngeas. São Paulo. Editora: Pró-Fono, 1999.
2. Kumar SB et al. Elevated cytokine and chemokine levels in the placenta are associated with in-utero HIV-1 mother-to-child transmission. *AIDS*. 2012;5. Furlan S A, Fukuda M T H, Granzotti R B G. Habilidades de consciência fonológica em crianças portadoras da síndrome da imunodeficiência adquirida: pré e pós-terapia fonoaudiológica. *Rev Soc Bras Fonoaudiol*. 2012;
3. Mangilli L D Et Al. Atuação Fonoaudiológica Em Pacientes Com Síndrome Da Imunodeficiência Adquirida E Queixa De Deglutição – Análise Retrospectiva De Prontuários. *Audiol., Commun. Res., São Paulo*, V. 21, E1620, 2016.
4. Paula I S. Mielite Transversa Por Citomegalovírus Em Pessoa Vivendo Com HIV/AIDS: Relato De Caso E Revisão Da Literatura (Monografia Em Residência Médica De Infectologia) - Instituto De Infectologia Emílio Ribas, São Paulo, 2020.
6. Gomes A M T; Cabral I E; Schilkowsky L B. Crianças com hiv/aids de uma unidade ambulatorial pública. Rio de janeiro, brasil 2003: conhecendo seu perfil *Rev. Soc. Bras. Enferm. Ped.* v.4, n.2, p. São Paulo, dezembro de 2004.
7. Matas C G, Leite R A, Magliaro F C. Avaliação Audiológica E Eletrofisiológica Em Crianças Portadoras Da Síndrome Da Imunodeficiência Adquirida. *Rev ACTA ORL*. 2005.
8. Al-Husaini A M. Role of placenta in the vertical transmission of human immunodeficiency virus. *J Perinatol*. 2009.
9. Araújo D R, Bicalho I C S, Di Francesco R. Disfagia em pacientes portadores da síndrome da imunodeficiência adquirida - AIDS. *Rev CEFAC*. 2005;
10. Pereira E C Et Al. Análises Perceptivo-Auditiva E Acústica Das Vozes De Crianças Infectadas Pelo HIV. *Codas*, São Paulo, V. 29, N. 6, E20170022, 2017.
11. Quidicomo S, Matas Cg. Estudos da função auditiva em indivíduos com HIV/AIDS submetidos e não submetidos à terapia antirretroviral. *ACR*. 2013.
12. Resende L.M., Santos T. M. M., PINTO J. A., Perfil audiológico de crianças HIV infectadas. *Rev. CEFAC*. 1999.
13. CMM. A Fonoaudiologia intervindo em pacientes com AIDS. 1ª Edição. São Paulo: Lovise; 2001.
14. Dias R M et al. Crianças HIV Positivas: Características Antropométricas e Sociodemográficas. *Rev para med*. 2012;
15. Grando L J et al. Manifestações estomatológicas, contagem de linfócitos T-CD4+ e carga viral de crianças brasileiras e norte-americanas infectadas pelo HIV. *Rev Odontol Bras*. 2002.
16. Boekel, Valentina Van Et Al. Vasculite isolada do sistema nervoso central e acometimento do VIII nervo craniano manifestações raras da síndrome de imunodeficiência adquirida: an uncommon manifestation of AIDS. *Arq. Neuro-Psiquiatr.*, São Paulo, v. 50, n. 1, p. 104-109, Mar. 1992.
17. Manfredi A K S et al. Triagem auditiva neonatal em recém-nascidos de mães Soropositivas Para O HIV. *J. Soc. Bras. Fonoaudiol.*, São Paulo, V. 23, N. 4, P. 376-380, Dec. 2011.
18. Vieira A B C et al. Manifestações otoneurológicas associadas à terapia anti-retroviral. *Rev. Soc. Bras. Med. Trop.*, Uberaba, v. 41, n. 1, p. 65-69, Feb. 2008.
19. Arias RA, Munoz LD, Munoz-Fernandez MA. Transmission of HIV-1 infection between trophoblast placental cells and Tcells take place via an LFA-1-mediated cell to cell contact. *Virology*. 2003;
20. Granzotti R B G et al. Aspectos da linguagem em crianças infectadas pelo HIV. *Rev. CEFAC*. 2013.
21. Guedes-Granzotti R B et al. Linguagem oral e escrita de crianças soropositivas para o HIV: um acompanhamento longitudinal. *Audiol., Commun. Res.*, São Paulo, v. 22, e1852, 2017.
22. Sanjar F A; Queiroz B E U P; Miziara I D. Manifestações otorinolaringológicas na infecção pelo HIV: aspectos clínicos e terapêuticos. *Braz. j. otorhinolaryngol. (Impr.)*, São Paulo, v. 77, n. 3, p. 391-400, June 2011.