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ORIGINAL ARTICLE

Audiological and electrophysiological alterations in HIV-infected individuals subjected or not to antiretroviral therapy^{☆,☆☆}

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KEYWORDS

Acquired immunodeficiency syndrome;
Adults;
Auditory evoked potentials;
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Abstract

Introduction: The Human Immunodeficiency Virus (HIV) and infections related to it can affect multiple sites in the hearing system. The use of High-Activity Anti-Retroviral Therapy (HAART) can cause side effects such as ototoxicity. Thus, no consistent patterns of hearing impairment in adults with Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome have been established, and the problems that affect the hearing system of this population warrant further research.

Objectives: This study aimed to compare the audiological and electrophysiological data of Human Immunodeficiency Virus-positive patients with and without Acquired Immune Deficiency Syndrome, who were receiving High-Activity Anti-Retroviral Therapy, to healthy individuals.

Methods: It was a cross-sectional study conducted with 71 subjects (30–48 years old), divided into groups: Research Group I: 16 Human Immunodeficiency Virus-positive individuals without Acquired Immunodeficiency Syndrome (not receiving antiretroviral treatment); Research Group II: 25 Human Immunodeficiency Virus-positive individuals with Acquired Immunodeficiency Syndrome (receiving antiretroviral treatment); Control Group: 30 healthy subjects. All individuals were tested by pure-tone air conduction thresholds at 0.25–8 kHz, extended high frequencies at 9–20 kHz, electrophysiological tests (Auditory Brainstem Response – ABR, Middle Latency Responses – MLR, Cognitive Potential – P300).

Results: Research Group I and Research Group II had higher hearing thresholds in both conventional and high frequency audiometry when compared to the control group, prolonged latency

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PALAVRAS CHAVE

Síndrome da imunodeficiência adquirida;
Adultos;
Potenciais auditivos evocados;
Perda auditiva;
HIV

of waves I, III, V and interpeak I–V in Auditory Brainstem Response and prolonged latency of P300 Cognitive Potential. Regarding Middle Latency Responses, there was a decrease in the amplitude of the Pa wave of Research Group II compared to the Research Group I.

Conclusions: Both groups with Human Immunodeficiency Virus had higher hearing thresholds when compared to healthy individuals (group exposed to antiretroviral treatment showed the worst hearing threshold) and seemed to have lower neuroelectric transmission speed along the auditory pathway in the brainstem, subcortical and cortical regions.

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Alterações audiológicas e eletrofisiológicas nos indivíduos infectados pelo HIV submetidos ou não à terapia antirretroviral

Resumo

Introdução: O HIV e as infecções relacionadas a ele podem afetar vários sítios do sistema auditivo. O uso de terapia antirretroviral de alta atividade pode causar efeitos colaterais, como ototoxicidade. Assim, não foram estabelecidos padrões consistentes de deficiência auditiva em adultos com HIV/AIDS, e os problemas que afetam o sistema auditivo dessa população justificam pesquisas futuras.

Objetivos: Este estudo teve como objetivo comparar os dados audiológicos e eletrofisiológicos de pacientes HIV positivos com e sem AIDS, que estavam recebendo terapia antirretroviral de alta atividade, com os de indivíduos saudáveis.

Método: estudo transversal com 71 indivíduos (30-48 anos), dividido em grupos: Grupo de Pesquisa I: 16 indivíduos HIV-positivos sem AIDS (não recebendo tratamento antirretroviral); Grupo de Pesquisa II: 25 indivíduos HIV-positivos com AIDS (recebendo tratamento antirretroviral); Grupo Controle: 30 indivíduos saudáveis. Todos os indivíduos foram testados para limiares de condução aérea de tons puros a 0,25-8 kHz, altas frequências prolongadas a 9-20 kHz, testes eletrofisiológicos (Resposta auditiva do tronco encefálico - Respostas de Latência Média - Potencial Cognitivo - P300).

Resultados: o Grupo de Pesquisa I e o Grupo de Pesquisa II apresentaram limiares auditivos mais elevados em audiometria convencional e nas frequências altas quando comparados com o grupo controle, latência prolongada das ondas I, III, V e interpico I-V em resposta auditiva de tronco encefálico, e latência prolongada de P300. Em relação às respostas de latência média, houve uma diminuição na amplitude da onda Pa do Grupo de pesquisa II em comparação com o grupo de pesquisa I.

Conclusões: ambos os grupos com HIV apresentaram limiares auditivos mais elevados quando comparados aos indivíduos saudáveis (o grupo exposto ao tratamento antirretroviral apresentou o pior limiar auditivo) e parecem ter menor velocidade de transmissão neuroelétrica ao longo da via auditiva nas regiões do tronco encefálico, subcortical e cortical.

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Introduction

The human immunodeficiency virus (HIV) causes Acquired Immune Deficiency Syndrome (AIDS), the devastating pandemic that continues to affect millions of people worldwide.^{1,2}

HIV infection and AIDS are distinct nosological entities. Many HIV-infected individuals present a normal number of immune cells, remaining asymptomatic for long periods of time, and could not be categorized as presenting the clinical definition of AIDS. To be clinically defined as AIDS, seropositive individuals older than 13 years of age, should present a

CD4+ T lymphocyte count below 350 cells per mm³ (Ministério da Saúde, 1999)³ or develop at least one clinical condition that is consistent with AIDS.⁴

Since the advent of new antiretroviral drugs, there was a consistent shift in the treatment of HIV infection, providing to infected individuals a delay in the disease development and improving their clinical condition, although doubts regarding the toxic action of antiretroviral drugs on both peripheral and central auditory systems.

Until the 1990s, the most common treatment performed in antiretroviral therapy was the monotherapy, that is, the use of only one drug. Due to the evolution of the treatment,

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