



Brazilian Journal of OTORHINOLARYNGOLOGY

www.bjorl.org



ORIGINAL ARTICLE

Effects of the reduction of caffeine consumption on tinnitus perception[☆]



Ricardo Rodrigues Figueiredo^{a,b,c,*}, Marcelo José Abras Rates^{c,d,e},
Andréia Aparecida de Azevedo^{c,f}, Ronaldo Kennedy de Paula Moreira^g,
Norma de Oliveira Penido^a

^a Post-Graduate Program in Otorhinolaryngology, Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil

^b Faculdade de Medicina de Valença, Rio de Janeiro, RJ, Brazil

^c Tinnitus Research Initiative, Regensburg, Germany

^d Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, MG, Brazil

^e Centro de Tratamento e Pesquisa em Zumbido, Belo Horizonte, MG, Brazil

^f Otorrinolaringologia Sul-Fluminense (OTOSUL), Volta Redonda, RJ, Brazil

^g Santa Casa de Misericórdia de Belo Horizonte, Belo Horizonte, MG, Brazil

Received 3 September 2013; accepted 17 November 2013

Available online 12 June 2014

KEYWORDS

Tinnitus;
Caffeine;
Coffee

Abstract

Introduction: For many years, excessive caffeine consumption has been touted as an aggravating factor for tinnitus. The pathophysiology behind this effect is probably related to the blockage of adenosine receptors by the action of caffeine on the central nervous system.

Objective: To evaluate the effects of reduction of coffee consumption on tinnitus sensation and to identify subgroups more prone to benefit from this therapeutic strategy.

Study design: Prospective.

Methods: Twenty-six tinnitus patients who consumed at least 150 mL of coffee per day were selected. All were asked to reduce their coffee consumption. The Tinnitus Handicap Inventory (THI) questionnaire was completed by the patients before and after the reduction of coffee consumption, as well as a visual-analog scale (VAS) graduated from 1 to 10.

Results: THI and VAS scores were significantly reduced ($p < 0.05$). In the subgroups less than 60 years old, bilateral tinnitus and daily coffee consumption between 150 and 300 mL showed a significantly greater reduction of THI and VAS scores.

[☆] Please cite this article as: Figueiredo RR, Rates MJ, de Azevedo AA, Moreira RK, Penido NO. Effects of the reduction of caffeine consumption on tinnitus perception. Braz J Otorhinolaryngol. 2014;80:416–21.

* Corresponding author.

E-mail: rfigueiredo@otosul.com.br (R.R. Figueiredo).

Conclusion: Patients under 60 years of age with bilateral tinnitus and daily coffee consumption between 150 and 300 mL are more prone to benefit from consumption reduction. Thirty-day observation periods may be helpful for a better therapeutical decision.

© 2014 Associação Brasileira de Otorrinolaringologia e Cirurgia Cérvico-Facial. Published by Elsevier Editora Ltda. All rights reserved.

PALAVRAS-CHAVE

Zumbido;
Cafeína;
Café

Efeitos da redução no consumo de cafeína sobre a percepção do zumbido

Resumo

Introdução: O consumo abusivo de cafeína vem sendo descrito como fator de piora e causa do zumbido há muitos anos. A fisiopatologia deste efeito está provavelmente relacionada ao bloqueio dos receptores inibitórios adenosínicos pela cafeína no sistema nervoso central.

Objetivo: Avaliar os efeitos da redução do consumo de cafeína na percepção do zumbido e identificar subgrupos de pacientes mais propensos a benefícios com esta proposta.

Tipo de estudo: Prospectivo.

Métodos: Selecionados 26 pacientes com zumbido neurosensorial e consumo diário superior a 150 mL de café. Os efeitos da redução do consumo foram avaliados através do *Tinnitus Handicap Inventory* (THI) e da escala visual-análoga (EVA).

Resultados: Houve redução estatisticamente significativa ($p < 0.05$) nos escores do THI e EVA. Nos subgrupos com idade inferior a 60 anos, zumbido bilateral e consumo diário de café entre 150 e 300 mL apresentaram maior redução dos escores THI e EVA.

Conclusão: Em pacientes com idade inferior a 60 anos, zumbido bilateral e consumo diário de café entre 150 e 300 mL apresentaram benefícios com a redução no consumo diário de cafeína. Períodos observacionais de 30 dias podem ser úteis para a decisão terapêutica.

© 2014 Associação Brasileira de Otorrinolaringologia e Cirurgia Cérvico-Facial. Publicado por Elsevier Editora Ltda. Todos os direitos reservados.

Introduction

Caffeine, also known as methylxanthine, is part of the group of methylxanthines, and is considered the most widely used psychoactive substance in the world. The majority of its consumption is derived from dietary sources such as coffee, tea, cola soft drinks, and chocolate; the most striking behavioral effects are increases in alertness, energy, and concentration skills. These effects are more pronounced after ingestion of small to moderate amounts (50–300 mg).¹

The caffeine content by coffee cup varies depends on the form of preparation (Table 1).¹ In Brazil, the per capita consumption, according to the Associação Brasileira de Indústrias do Café (ABIC), is currently about 73 L per year, and the filtration method of preparation is the most commonly used.² A worldwide trend toward increased coffee consumption has been noted. The caffeine content of other beverages varies, on average, from 32 to 42 mg/150 mL (tea), 32 to 70 mg/330 mL (cola beverages), and approximately 4 mg/150 mL (chocolate flavored milk).¹

The absorption of caffeine in the gastrointestinal tract is rapid, reaching 99% after 45 min. Peak plasma levels are achieved between 15 and 120 min after oral ingestion, and the half-life is about 2.5–4.5 h. Caffeine is metabolized by the liver.¹

Currently, most authors believe that the main mechanism of action of caffeine is the antagonism of adenosinic

receptors.^{1,3–5} Adenosine reduces the firing rate of neurons, exerting an inhibitory effect on synaptic transmission and in the release of various neurotransmitters. In 1993, Daly observed increased brain levels of norepinephrine, glutamate, and adrenaline after caffeine intake.³ The adenosinic receptors involved with the effects of caffeine are A1 and A2. Neurostimulant effects of caffeine have been demonstrated in functional imaging studies.⁶

A2 adenosinic receptors interact with dopaminergic receptors in the nucleus striatum and nucleus accumbens by modulating them. Therefore, the blockage of these receptors, exerted by caffeine, could potentiate the dopaminergic neurotransmission.¹

Table 1 Amount of caffeine in various forms of coffee preparation.

Coffee preparation	Volume of cup (mL)	Caffeine content (mg/cup)
Coction (boiling)	150–190	111–177
Filtering	50–190	28–161
Espresso	50–150	74–99
Percolation	150–190	55–88
Instant (soluble)	50–190	19–34

Adapted from Nehlig¹

Download English Version:

<https://daneshyari.com/en/article/4106328>

Download Persian Version:

<https://daneshyari.com/article/4106328>

[Daneshyari.com](https://daneshyari.com)