2020

The Effect of Amitriptyline on Biomarkers Associated with Brain Health and Drug Metabolism

Ashana Jackson
Bukola Odeniyi
Omar Hassan

Follow this and additional works at: https://scholarscompass.vcu.edu/uresposters

© The Author(s)

Downloaded from
Jackson, Ashana; Odeniyi, Bukola; and Hassan, Omar, "The Effect of Amitriptyline on Biomarkers Associated with Brain Health and Drug Metabolism" (2020). Undergraduate Research Posters. Poster 357. https://scholarscompass.vcu.edu/uresposters/357

This Book is brought to you for free and open access by the Undergraduate Research Opportunities Program at VCU Scholars Compass. It has been accepted for inclusion in Undergraduate Research Posters by an authorized administrator of VCU Scholars Compass. For more information, please contact libcompass@vcu.edu.
The Effect of Amitriptyline on Biomarkers Associated with Brain Health and Drug Metabolism

Ashana M. Jackson Bukola Odeniyi, Omar Hassan, Elvin T. Price, Pharm.D., Ph.D
Institute for Inclusion, Inquiry, and Innovation (iCubed), VCU; Department of Psychology, VCU; Department of Pharmacotherapy & Outcomes Science

Introduction

Chronic use of high doses of Amitriptyline can lead to a decrease in brain capabilities and even negative effects on short-term memory. Decreased expression of different brain biomarkers, such as Peroxisome proliferator-activated receptor gamma (PPARG) and CAMP responsive element binding protein 1 (CREB1) are also linked with cognitive decline. Increased expression of Calcium Voltage-Gated Channel Subunit Alpha1 C (CACNA1C) has been negatively correlated with short term object recognition.

Purpose

This study examined the effect of Amitriptyline on brain biomarkers: CACNA1C, CREB1, and PPARG.

Methods

Human astrocytes were grown and separated into three 6-well sample plates. Cell treatment groups were: Interleukin 1 beta (IL1B), Amitriptyline 50M, Amitriptyline 220M, ILB + Amitriptyline 50M and ILB + Amitriptyline 220M. The mRNA expression was measured using RT-PCR. The data was analyzed by graph pad prism and ANOVA with Sidak’s multiple comparisons test.

Results

Findings indicated that Amitriptyline significantly increased CACNA1C expression and decreased expression of PPARG. Though, different concentrations had varying effects on the expression of CREB1. These results indicate that the cognitive decline linked to Amitriptyline are likely due to the effects that this drug has on these genes.

References