

Presentation Abstract

Session: Etiology and Diagnosis of Fibromyalgia

Wednesday, Oct 29, 2008, 11:00 AM -12:30 PM

Presentation: 2100 - Alpha and Beta Adrenergic Receptors Polymorphisms and Fibromyalgia

Pres. Time: Wednesday, Oct 29, 2008, 12:15 PM -12:30 PM

Location: Room 134

Category: 9. Fibromyalgia and soft tissue disorder

Author(s): Gilberto Vargas-Alarcon¹, Manuel Martinez-Lavin¹, Angelica Vargas¹, Jose-Manuel Fragoso¹, David Cruz-Robles¹, Ferran Garcia-Fructuoso², Jose-Ignacio Lao-Villadoniga³, Maite Vallejo¹. ¹National Institute of Cardiology, Mexico City, Mexico; ²CIMA Clinic, Barcelona, Spain; ³Echevarne Laboratory, Barcelona, Spain

Abstract: Diverse methods of study have shown that fibromyalgia (FM) patients have signs of relentless sympathetic hyperactivity associated with hypo-reactivity to stress. It has been proposed that such dysautonomia explains FM multisystem features. (Arthritis Res Ther. 2007;9:216). Catecholamines are the sympathetic neurotransmitters. Catechol-O-methyltransferase (COMT), an enzyme, is the major catecholamine catabolic pathway. Previous studies have shown that some populations of women with fibromyalgia have COMT gene polymorphisms associated with sluggish COMT enzyme. (Arthritis Res Ther. 2007;9:R110). Purpose: In the present investigation we focus on a genetic approach to different sympathetic neurotransmission sites; the adrenergic receptor. The adrenergic receptors are a class of G protein-coupled receptors that are targets of the catecholamines. There are two main subtypes: alpha receptors (AR), more directly related to vasoconstriction, and beta receptors (BR), that increase cardiac output and vasodilation.

Objective: to define if there is association between patients with FM and single nucleotide polymorphisms (SNPs) related to important alpha and beta adrenergic receptor functional sites

Methods: We studied 78 Mexican women with FM and 48 healthy Mexican women as well as 78 Spanish women with FM with their respective 71 sex-matched controls. All participants filled out the Fibromyalgia Impact Questionnaire (FIQ). Four alpha receptor SNP (rs574584, rs1383914, rs1048101 and rs573542), and 3 beta receptor SNP (rs1042713 and rs1042714 and

rs4994) were defined using 5' exonuclease TaqMan™ PCR. Genotyping results were correlated to FIQ visual analogue scales (VAS).

Results: There was a significant difference between Spanish patients from their respective controls in SNP AR rs-1383914 ($p= 0.01$). In Spanish patients there was an association between AR rs1048101 and FIQ-VAS for "difficulty with work" ($p= 0.02$). In Mexican patients, there was a correlation between AR SNP rs574584 with total FIQ score ($p=0.01$), AR rs-574584 with two FIQ-VAS: "tiredness upon awakening" (0.04) and "stiffness" ($p = 0.02$). No significant differences were found in any beta receptors gene SNP.

Conclusions: There are several genetic variations of alpha adrenergic receptors in Mexican and Spanish patients with FM. These findings provide further clue to FM dysautonomic nature.

Research Method: Clinical

Type of Trial: Correlative

Disclosures: G. Vargas-Alarcon, None; M. Martinez-Lavin, None; A. Vargas, None; J. Fragoso, None; D. Cruz-Robles, None; F. Garcia-Fructuoso, None; J. Lao-Villadoniga, None; M. Vallejo, None.