Asthma and chronic obstructive pulmonary disease (COPD) are chronic inflammatory diseases of the airways caused by gene-environment interactions. Thus far, several gene polymorphisms have been identified to determine susceptibility and drug treatment response phenotypes in both illnesses.

OBJECTIVES

The aim of this study was to analyze genetic polymorphisms of inflammatory mediators in subjects with asthma and COPD in Venezuelan population.

METHODS

We studied 100 asthmatics, 100 patients with COPD and 100 healthy controls. Genomic DNA was purified from blood leukocytes and subsequently Polymerase Chain Reaction (PCR), Restriction Fragment Length Polymorphism (RFLP) and agarose/polyacrylamide gel electrophoresis techniques were used to determine SNP (Single Nucleotide Polymorphism) and VNTR (Variable Number Tandem Repeat) polymorphisms in genes that encoding for eight cytokines involved in inflammatory response (IL-6-174 G/C, TNF-α+489 G/A, IL-1+3953 C/T, IL-4 VNTR 70 pb, IL-1Ra VNTR 86 pb, TGF-β+869 Leu/Pro, IL-10 -1082 G/A, IL-13 -1055 C/T), glucocorticoid receptor (+647 G/C) and Nuclear Factor κB inhibitory protein (A/G).

RESULTS

A significant association were observed in the following genotypes/haplotypes: IL-1β+3953 C/T, IL-1Ra Intron 2 I/II, IL-10-1082 G/G, IL-1β+3953 T/IL-1Ra VNTR I and IL-4 VNTR RP1:GCR+647C in patients with COPD; IL-4 VNTR Intron 3 RP2/RP2, IL-13-1055 T/T and GCR+647 G/G in patients with asthma; NFκB1A A/G genotype was a protector genotype for COPD and IL-1β+3953 C:IL-1Ra VNTR I haplotype was protector for the development of both diseases.

CONCLUSIONS

These data suggest that there are many genetic markers which will be likely to contribute to the presence of asthma and COPD in our population.