Studies of genetic epidemiology about phenotype with complex determination in the context of biomedical basic sciences doctoral program.

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Introduction: The teaching process conducted studies in the doctoral program in Cuba is important in the context of biomedical basic sciences.

Objective: To identify the general and specific basis for the teaching in relation of investigations procedure in genetic epidemiology that guarantee to obtain of scientific degree for the physicians and other professional in relation with biomedical basic science.

Materials and methods: In the paper we shown the results of six research project in this area in the doctoral program of Medical University of Villa Clara. For shown evidence that the six different phenotype has a genetic basis were analysed the presence of higher prevalence in relatives compared with general population, higher risk among first-degree relatives of affected individuals, segregation mode of phenotype and different studies of association from DNA polymorphism (SNP), chromosome variants and echography biomarkers. For find evidence the intervention of environment factors in the pathogenesis of disorders we applied the interview with questions about specific risk factors, and analysis of gene - environment interactions in the pathogenesis with different model for demonstration the type of interactions suggests.

Results: We found that the research studies conducted by mainstream epidemiological theme may be divided into three broad categories: (1) those that aim to describe the distribution of a disease or a determinant at the level of a population of interest (familiar hereditary angioedema); (2) those that attempt to investigate a potential aetiological link between one or more specific determinants and a disease of interest (congenital birth defects, cervix cancer, reproductive failure, and longevity) and (3) those aimed at formally evaluating the effectiveness of an intervention applied to individuals or groups of individuals in the general population (hypoplasia fetal thymus).

Conclusions: The teaching process which conducted studies in the doctoral program en Villa Clara, Cuba over the last 5 years indicate that both genetic and environmental factors play a critical role in the pathogenesis of theses disease, the high prevalence of these in the relative and the familiality of the disease and its endophenotype, strongly suggest a substantial genetic basis.

Keywords: doctoral program, teaching process.