Negative Association of the HLA-DQB1*02 Allele with Breast Cancer Development among Jordanians

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Abstract

Background: In the literature, data concerning the relationship between breast cancer and HLA class II gene polymorphisms are limited, so the aim of this study was to determine if HLA-DQB1 and HLA-DRB1 MHC class-II alleles may confer susceptibility or resistance to the disease among Jordanian females. Materials and Methods: This case control study enrolled 56 Royal Hospital breast cancer patients and 60 age matched healthy controls, all of whom provided blood samples (2011-2013). A questionnaire was filled after signing a consent form and DNA was extracted, nucleic acids being amplified for assessment of HLA-DQB1 and HLA-DRB1 alleles by multiplex INNO-LiPA and allele typing carried out by reverse hybridization. Comparison of HLA-DQB1 and HLA-DRB1 allele distributions was carried out with paired t-test and chi-square statistics. Risk factors were assessed by odd ratios with 95% confidence intervals. Results: A significant negative correlation was observed between HLA-DQB1* 02 alleles and breast cancers (p=0.013). No significant associations were observed among HLA-DQB1* 03, 04, 05 and 06 or among HLA-DRB1* 01, 03, 04, 07, 08, 10, 11, 13, 14 and 15. Conclusions: HLA-DQB1* 02 alleles may provide positive protection against breast tumor risk among Jordanians, but not HLA-DQB1* 03, 04, 05 and 06 or HLA-DRB1* 01, 03, 04, 07, 08, 10, 11, 13, 14 and 15 alleles. Keywords: HLA-DQB1 - HLA-DRB1 - alleles - breast cancer - susceptibility RESEARCH ARTICLE N