Poster Presentations

Genetics 1

Genetic variants in CASP3, BMP5, and IRS2 genes may influence survival in prostate cancer patients receiving androgen-deprivation therapy

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Background: Recently, several genome-wide association studies (GWAS) have been conducted to identify common single nucleotide polymorphisms (SNPs) that influence risk of prostate cancer. We hypothesized that some prostate cancer-associated SNPs might relate to clinical outcomes in prostate cancer patients receiving androgen-deprivation therapy (ADT).

Methods: A cohort of 601 patients with prostate cancer treated with ADT was genotyped for 29 SNPs associated with prostate cancer in Cancer Genetic Markers of Susceptibility GWAS and within genes that have been implicated in cancer. The prognostic significance of these SNPs on disease progression, prostate cancer-specific mortality (PCSM) and all-cause mortality (ACM) after ADT were assessed by Kaplan-Meier analysis and Cox regression model.

Results: Three SNPs, CASP3 rs4862396, BMP5 rs3734444, and IRS2 rs7986346, were associated with ACM ($P <= 0.042$), and BMP5 rs3734444 and IRS2 rs7986346 were also significantly associated with PCSM ($P <= 0.032$) after controlling for known clinicopathologic predictors. Moreover, patients carrying a greater number of unfavorable genotypes at the loci of interest had a shorter time to ACM and PCSM during ADT (P for trend < 0.001).

Conclusion: These results suggest that CASP3 rs4862396, BMP5 rs3734444, and IRS2 rs7986346 may affect survival in prostate cancer patients treated with ADT, and the analysis of these SNPs can help identify patients at high risk for a poor outcome.