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Association of MMP1 & MMP2 common polymorphisms on prostate cancer risk

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Background: The polymorphic genetic variants of Matrix metalloproteinase (MMPs) can play critical roles in development and progression of cancer. The purpose of this study was to investigate any association between MMP2-1306C/T and MMP1-1607 1G/2G polymorphism and risk of PCa.

Methods: This case-control study comprised a total number of 241 subjects including 102 patients with PCa and 139 controls with benign prostatic hyperplasia (BPH). MMP1 and MMP2 genotypes were detected by RFLP.\

Results: Familial History of prostate cancer (9.5% vs 1.6%, p=0.01) and smoking behavior (25.9% vs 8.1%, p=0.001) were significantly more common among prostatic cancer patients than those without. The odds ratio between 1G/2G genotype and prostate cancer was 0.30 and also the odds ratio between homozygote genotype and developing cancer was 0.35 both of which were statistically significant. But after adjusting for age, familial history of prostate cancer and smoking habit, only the effect of heterozygote genotype remained significant (p=0.02). There is no role for MMP1 polymorphism in higher degrees of the tumor metastasis. MMP1 polymorphism was not assumed. These is no significant difference between different genotypes of MMP2 polymorphism and risk of developing prostate cancer (p=0.08). Although these genotypes increased the risk of developing prostate cancer as of 79% (CT vs CC) and 54% (TT vs. CC) none of them had significant effect (p=0.09 & p=1 respectively). There were no significant difference in genotype frequencies between patients between low and high degree prostate cancer (p=0.4). Therefore, this polymorphism cannot be considered as a protective factor for prostatic cancer metastasis. It seems that MMP2 polymorphism has no protective effect on the grading of the tumor (p=0.8). Our results indicated that MMP2 polymorphism had no role in the vascular invasion of the prostate cancer. Both MMP1 and MMP2 polymorphisms did not affect the susceptibility of the prostate cancer to peri-neural invasion.

Conclusion: We found no association between the MMP1& MMP2 polymorphisms and cancer risk, overall or by grade, stage or age of diagnosis. Finally, there was no association between the different genotypes and PSA plasma levels among cases or controls. Further evaluations with larger samples from our population may illuminate the effects of polymorphisms on prostate cancer risk and thus help early diagnosis, follow-up and prognostic determinations for prostate cancer patients.

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Efficacy of supportive histo-morphological features in prostate cancer diagnosis

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Prostate cancer is a major disease of concern in adult males. Histological architectural heterogeneity has rendered challenges to diagnosis. Definitive diagnosis has been relied on Pathologist subjectivity. Major histologic features of infiltrative growth pattern, nuclear atypia and loss of basal cell on the prostate epithelium remain the most common features observed for in histopathological diagnosis. However benign mimicry of these features poses challenges to definitive diagnosis. Increasing frequency of supportive histologic features of prominent nucleoli, collagenous micronodules, perineural invasion, blue tinged mucinous secretions and intraluminal crystalloids which previously were unknown is making advancement in the diagnostic library as an additive protocol. In this study we sought to observe the frequencies of these supportive histologic features on a needle biopsy of prostate cancers. Mean age of diagnosis of prostate diseases was 69.15±11.24 with incidence of prostate diseases as Benign Prostate Hyperplasia 148 (50.6%), Prostate Carcinoma, 114 (39.0%), Prostatitis 22 (7.5%) and others 8 (2.7%). In this inspection we found significant numbers of supportive histologic features on prostate cancer cases. Perineural invasion (38.1%), prominent nucleoli (34.3%), collagenous micro nodules (12.7%), intraluminal crystalloids (9.0%) and blue tinged mucinous secretions (6.0%) were explicitly expressed. The findings points to the consideration of these supportive histo-morphological features in the histo-pathologic diagnosis of prostate carcinoma.

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