

Background

Prostate cancer(Pca) is one of the most common type of cancer in men. Androgen deprivation therapy(ADT) is the main choice of prostate cancer treatment. While major investigations have focussed on caucasians population. Here, we intended to explore the molecular characteristics and clinical characteristics between localized and metastatic of Chinese Pca patients.

Methods

29 Pca patients with localized or metastatic tumor were enrolled. Somatic and germline mutations were identified via targeted next generation sequencing with Acornmed panel including 808 genes associated with tumor development.

Results

Median age was 68 yrs (range 53-80), 62% were classified as metastatic(M), and 17% had received one prior ADT drug. The most common somatic mutations were observed in TP53(24%), FOXA1(21%), CDK12(17%), AR(10%), KRAS(7%), PIK3CA(7%), SPOP(7%), PTCH1(7%), ATM(7%) and TSC2(3%) genes. Median tumor mutational burden (TMB) was 7 Mus/ Mb(1-22). Germline pathogenic or likely pathogenic mutations occurred 17% of Pca patients, 4/5 mutations were DNA damage response genes, and 4 patients had metastatic Pca. AR was shared by both localized and metastatic Pca (2 in ADT- and 1 in ADT+). Mutated CDK12 was only detected in patients

Molecular Profiling and Clinical Characteristics of Chinese Patients with Prostate Cancer

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> without any history of ADT drug(3 in M- and 2 in M+). Interestingly, Tp53 mutations were only detected in metastatic Pca(7/18 M+). FOXA1 mutations were observed more frequently in patients with localized Pca(4/11M- versus 2/18 M+).



Figure 1. Landscape of the top most somatic mutated genes in patients with prostate cancer.



Figure 2. Frequency and locations of pathogenic and likely pathogenic germline variants in patients with prostate cancer



treatment and metastatic status.

These findings show differences in the genomics alterations of metastatic and localized prostate cancer. Germline mutations are more likely to be detected in patients with advanced prostate cancer. Mutations in the TP53 gene are more common in advanced prostate cancer.

Conflicts of Interest

TongtongYang, Huina Wang, Feng Lou, Shanbo Cao are employees of Acornmed Biotechnology Co., Ltd.

References

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Figure 3. Frequency of somatic gene mutations in prostate cancer patients grouped according to ADT

Conclusions