PROSTATE CANCER HEALTH & RACIAL DISPARITIES AMONG DIFFERENT ENVIRONMENTAL TERRITORIES AND THE BIOMARKER STUDIES

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Abstract: Prostate cancer (PCA) is known as one of the most common leading cancers in males worldwide according to the International Agency for Research on Cancer (IARC). It is three times most common in blacks than whites. The raison d'être of the dangers of PCA among African blacks is important to create awareness to eradicate this disease in the future. To achieve our goal, we conducted a literature review, revising data on PCA morbidity and mortality rates in countries with high population of black men of African descent: Such as the U.S., South Africa, and State of Texas. Lifestyle, obesity, diabetes, and drugs were recorded as major risk factors. A comparative analysis portrays the U.S. & State of Texas with the most obese and diabetic rates compared to South Africa. Would the health disparity trigger the higher PCA occurrences? A literature review would be focused on existing data from NCBI/PubMed, World Health Organization (WHO), National Cancer Institute (NCI/NIH), CANSA Africa, Center for Disease Control (CDC), U.S. census Bureau and U.S mortality files, and National Center for health statistics. Joint point analysis was done and peer review files were studied. Comparative analysis was performed on incidence and mortality rates including risk factors recorded in males ages 40 & older. Mortality rate was calculated as [(the total number of deaths per year / the total population) * 100]. The analysis of variance (ANOVA) function in SAS and Excel programs was used to analyze the data to show the health/racial disparity on PCA. Final research will focus on the identification of key genes (biomarkers) causing PCA. High throughput microarray & NGS transcriptomics data analysis would be used to identify differentially expressed genes in PCA, and expression Quantitative Trait Loci (eQTL) would be used to identify the SNPs associated with PCA. Prostate cancer remains a global public health problem. Most governments have not included cancer control in their health agendas. The research on human gene changes (in gene expression and/or SNPs) in PCA on similar studies among different population groups has helped scientists better understands its manifestation. Health/racial disparity and eQTL studies on PCA should give us a clearer picture of the PCA causing genes which were affected in different environment and/or ethnic groups.

Keywords: Prostate cancer (PCA), health/racial disparity, morbidity, mortality, Single Nucleotide Polymorphisms (SNPs), microarray, next generation sequencing (NGS), ANOVA, eQTL.