DETERMINATION OF THE CYTOKINE PROFILE AND THE PSA LEVELS IN PROSTATE CANCER PATIENTS AT KENYATTA NATIONAL HOSPITAL

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DECLARATION

This research proposal is my original work and has not been presented for a degree or award in any other University.

Signed ..... Date 05/05/2014

Liza K. Mwirigi

We confirm that this proposal was written under our guidance as the supervisors.

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ABSTRACT

Prostate cancer (PCa) is Kenya's second most frequently diagnosed cancer of men with an incidence rate of 15.2 per 100,000 and mortality rate of 12.2 per 100,000. The International Agency for Research on Cancer (IARC) estimates that it is the leading cancer in terms of incidence and mortality in men from Africa and the Caribbean. It is predicted that the numbers will almost double by 2030. Men of the Sub-Saharan Africa descent around the world appear to suffer disproportionately compared to men of other races and ethnicities. Early diagnosis of PCa would prove crucial in lowering the mortality rates. Prostate Specific Antigen (PSA) is the main diagnostic biomarker used for screening currently. Its use is controversial because normal PSA levels have been found in men suffering from PCa. The PSA variations in the different stages of PCa have not been established. Biopsy histology is invasive and tedious and yet it is the only confirmatory test. Cytokines have been found to play a role in the growth and differentiation of normal and PCa cells but they have not been studied as biomarkers. There is an urgent need to develop other diagnostic modalities of PCa to lower the mortality and morbidity rates. The objectives of this study are to evaluate the cytokine profile and determine the PSA levels in PCa and to determine the risk factors that lead to the development of PCa. There is need to develop other accurate and precise non-invasive biomarkers that can be used for screening and diagnosis. Comparing the PSA levels with those of the cytokines in PCa will help in understanding their role in the progression of the disease. Since cytokines are used as screening biomarkers in other diseases, determining the cytokine profile could help single out various cytokines that could be used as biomarkers of PCa. A cross sectional study will be carried out to determine the cytokine profile and the PSA levels using serum samples involving 45 male patients aged 50 years and above at the KNH Urology Outpatient Clinics. Cytometric Bead Array technique on a flow cytometer will be used to determine the cytokine profile. Sandwich ELISA technique will be used to determine the PSA levels. A questionnaire will be used to determine the demographic and risk factors that lead to the development of PCa. Data will be coded and statistical analysis will be performed using the Statistical Package for Social Sciences (SPSS) version 1.5. Chi-square test and ANOVA will be used to assess the relationship between the variables. The findings from the study may lead to the implementation of various mitigation measures such as creating awareness, encouraging early screening and provision of proper treatment to the sick. This could in turn lower the morbidity and mortality rates from PCa. A comprehensive cytokine cataloging may provide information on cytokines that can be used as biomarkers for PCa.