

Effect of Antibiotics on Chronic Bacterial Prostatitis and Elevated TPSA Level

Battikhi MN*

Battikhi central Laboratories 149 Ibn Khaldon street, Amman 11183, Jordan

***Corresponding Author:** Moh'd Nizar Battikhi, 1017-1645 De Maisonneuve O, Montreal H3H 2N3, QC, Canada.

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Prostatic-specific antigen (PSA) is a tumor marker helpful in diagnosis prostate cancer may rise due to prostatitis, chronic benign prostatic hyperplasia (PBH) and cancer [1]. Prostatitis is the most common urological diagnosis in men < 50 years of age and approximately 10% of men have chronic prostatitis-like syndrome. Symptoms of CBP are caused by bacteria. The most common causative organisms of CBP are *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Proteus species* and *Staphylococcus aureus* [2-3]. Although fastidious organism such as *Chlamydia trachomatis*, *Ureaplasma urealyticum*, *Mycoplasma hominis* can cause non-bacterial prostatitis however, choice of antibiotics for prostatitis treatment is critical due to the fact that entry of antibiotics to prostatic acini rendered by prostate epithelial line gradient and therefore infection always persist [4].

TPSA levels vary by 15% on average per week [5] and increases by 20-46% yearly due to biological variation rather than cancer [6]. Recurrent infection of CBP caused by the same organisms which persist in the prostatic fluid, and has an associated symptoms complex [1-3]. Treatment may require several months of antibiotics a long with anti-inflammatory agents however, non-bacterial prostatitis shows sign and symptoms similar to those with CBP but culture show no causative infection agent however, treatment for severe cases may require hospitalization [7]. Meanwhile, antibiotics and anti-inflammatory agents can be orally used in outpatients setting [1-7]. In all cases such infection lead to changes in TPSA levels which are not surprising, since TPSA level in prostatic fluid is much higher than in serum, causing leakage from prostatic acini leading to increase TPSA level in serum [5]. Although prostatitis symptoms complex is not always caused by bacterial infection however, it is traditionally stated that bacteria are the agent responsible for infection and antibiotics are needed for treatment [8]. This may explain why 50% of patients with symptoms consistent with CBP are treated with antibiotics although only 5-10% of men has truly bacteriologic condition that improved with treatment [3]. Consequently, the rational prescribing antibiotics for men with elevated TPSA level still persisted assuming that patient has infectious prostatitis. Such rational policy for treatment seems irrelevant and surely lead to develop multidrug resistant organisms and make physician task for treatment much harder.

Total serum prostatic-specific antigen (TPSA) and free PSA (FPSA) used widely as clinical screening tool for early detection of prostate cancer [9-14] although TPSA is not prostate specific marker and its utility is limited by other benign condition such as benign prostatic hyperplasia (BPH), prostatitis and aging which cause TPSA level elevation [15]. Lack of TPSA testing specificity showed that 10-15% of men tested will have TPSA level > 4,0 ng/ml and 21-37% of men without cancer will have at least one abnormal PSA level [16-18].

Furthermore, high TPSA levels do not necessarily indicate prostate cancer [19] however, it was reported that high TPSA level will return to normal in 26-37% of men tested and hence such normal level stayed in 65-83% of men tested for several years without treatment required [5-20].

Antibiotics are often prescribed for men with an elevated TPSA levels on the presumption that the elevation is caused by infection [21] and effect of antibiotics may influence the course of bacterial prostatitis despite the fact that 90% of symptomatic infection and almost in all cases of asymptomatic infections are not caused by a bacteria [22]. Although many studies showed that prostatic inflammation had been associated with increased in TPSA levels and antibiotics have been prescribed however, effect on nonbacterial prostatitis was mini-

mal. In several studies of men with elevated PSA levels, 32-42% had evidence of prostatitis [1-5] and TPSA level fell to normal in 43-46% treated with antibiotics and remained so in most men for 1-2 years [21-22]. Despite the lack of evidence, antibiotics are often prescribed for elevated TPSA in men. The significant role of antibiotics action on PSA levels in men may certainly not clear and further research may be required. Although reports showed that changes in TPSA level with antibiotics were similar to the random variations in healthy men and there were no significant differences in bacterial cultures before or after antibiotics between PSA responders and non-responders [22]. None of these studies included a control group, and there have been no randomized trials to show that antibiotics are more likely to lower PSA levels than a placebo [5]. Although antibiotics relief patients however, considering expense, toxicity and widespread use of broad spectrum antibiotics encourage development of multidrug resistant bacteria strain which enforce reconsideration of drug prescribing policy particularly in developing countries.

Conclusion

In conclusion since effect of antibiotics on TPSA level is not clear the role of prescribing antibiotics for asymptomatic patients should be reconsidered. The effect of antibiotics was significant on chronic bacterial prostatitis and TPSA level was significantly varied between men suffering from prostatitis. Therefore, prostatitis should be considered when using TPSA as tumor marker.

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