European **Rev**iew for **Med**ical and **Pharmacol**ogical **Sci**ences 2013; 17: 422-423

Letter to the Editor

Factors that may affect the measurement of prostate specific antigen levels in patients with cardiovascular disease

Dear Editor,

In recent years, a growing interest has been directed towards the relationship between elevated prostate-specific antigen (PSA) levels and the cardiovascular conditions. In this context, in their recently published article Satıroglu and coworkers[1] investigated the relationship between PSA levels and the diagnosis and severity of coronary artery disease (CAD) in male patients. They concluded that there is no direct relationship between increasing levels of PSA and stage of CAD.

The population older than age 50 years has an increased risk of developing chronic medical conditions such as prostatic and cardiovascular disorders, and has a particularly high rate of multi-drug use. Nonetheless, PSA level is likely to be affected with polypharmacy in such older patients. Chang et al[2] investigated the impact of individual and combinations of common medications on PSA in 1,864 men and found that men using nonsteroidal anti-inflammatory drugs, statins, and thiazide diuretics have reduced PSA levels by clinically relevant amounts. Nonetheless, they found the combination of statins and thiazide diuretics was associated with lowest level of serum PSA and the reduction in total PSA was less than the additive effects of statins and thiazide diuretics alone, whereas the inverse relationship between statins and PSA was minimized and no longer statistically significant with the concurrent use of calcium channel blockers[2]. In addition, it has been shown that telmisartan, an angiotensin II receptor blocker that possessing peroxisome proliferator-activated receptor gamma ligand-like structure, inhibits the PSA expression[3]. In the study by Satıroglu and coworkers[1], mean age of patients was 57±10 years, 62% of patients had hypercholesterolemia, 53% of patients had hypertension and 20% of patients had diabetes. So, the patients included in the study seem to be using some cardiovascular drugs.

Free PSA (fPSA) has low molecular mass and is eliminated by kidneys. Several studies showed that patients with end stage renal failure have significantly higher percent fPSA compared to men without known renal dysfunction[4,5]. In addition, both recently published 2 studies by Joseph et al[6] and Bruun et al[7] demonsrated that fPSA is not only increased in patients with end stage renal failure but also affected by slight and/or moderate renal dysfunction.

Also, obese patients tend to have lower PSA levels than patients with normal BMI. Several large-scale studies have found an inverse relationship between body mass index (BMI) and PSA levels and the decrease in PSA levels is thought to be due to increased plasma volume with increasing BMI[8,9].

The use of some medications, glomerular filtration rates (GFR) and BMIs have might affect the measurement of PSA levels. However, there was no data about medications, GFR values and BMIs of patients. The present study decision limits were developed without these knowledges.

References

1) Satiroglu O, Bostan M, Uzun H, Cetin M, Bozkurt E. Severity of coronary artery disease and prostate-specific antigen relationship in men. Eur Rev Med Pharmacol Sci 2012;16: 2078-2081.

Corresponding Author: Murat Celik, MD; e-mail: drcelik00@hotmail.com

2) Chang SL, Harshman LC, Presti JC, Jr. Impact of common medications on serum total prostate-specific antigen levels: analysis of the National Health and Nutrition Examination Survey. J Clin Oncol 2010; 28: 3951-3957.
3) Ishiguro H, Ishiguro Y, Kubota Y, Uemura H. Regulation of prostate cancer cell growth and PSA expression by angiotensin II receptor blocker with peroxisome proliferator-activated receptor gamma ligand like action. Prostate 2007; 67: 924-932.
4) Bruun L, Bjork T, Lilja H, Becker C, Gustafsson O, Christensson A. Percent-free prostate specific antigen is elevated in men on haemodialysis or peritoneal dialysis treatment. Nephrol Dial Transplant 2003; 18: 598-603.
5) Douville P, Tiberi M. Effect of terminal renal failure on the ratio of free to total prostate-specific antigen. Tumour Biol 1998; 19: 113-117.
6) Joseph DA, Thompson T, Saraiya M, Werny DM. Association between glomerular filtration rate, free, total, and percent free prostate-specific antigen. Urology 2010; 76: 1042-1046.
7) Bruun L, Savage C, Cronin AM, Hugosson J, Lilja H, Christensson A. Increase in percent free prostate-specific antigen in men with chronic kidney disease. Nephrol Dial Transplant 2009; 24: 1238-1241.
8) Rundle A, Neugut AI. Obesity and screening PSA levels among men undergoing an annual physical exam. Prostate 2008; 68: 373-380.
9) Werny DM, Thompson T, Saraiya M, Freedman D, Kottiri BJ, German RR, Wener M. Obesity is negatively associated with prostate-specific antigen in U.S. men, 2001-2004. Cancer Epidemiol Biomarkers Prev 2007; 16: 70-76.

M. Celik, U.C. Yuksel, E. Yildirim, Y. Gokoglan
Department of Cardiology, Gulhane Military Medical Academy, Ankara, Turkey