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Short Communication

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Prostate Cancer and Cardiovascular Diseases

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Cardiovascular diseases and prostate cancer share common risk factors such as age of presentation, unhealthy eating, obesity and smoking. It is also known that in Chile, cardiovascular and oncological diseases cause 52% of the global mortality in Chile according to 2014 data [1].

In relation to the treatment of prostate cancer, the therapeutic approach is given by the location of the disease, age and coexisting diseases. Side effects of treatments should be considered when selecting the most appropriate treatment for our patients. There are two main pillars for the treatment of advanced and / or locally advanced prostate cancer, one of them is surgical castration which has currently been discarded due to the psychological problems that this causes and hormonal therapy.

Hormone therapy by GnRH agonists initially produces an elevation of LH, FSH, testosterone and subsequently a decrease in testosterone to castration titres at 2-3 weeks, whose representative drug is Leuprolide. Hormonal treatment with GnRH agonists is associated with Obesity, Insulin Resistance, Increased Cholesterol and QT prolongation [2]. The first evidence of studies regarding metabolic alterations with the use of GnRH Agonists date back to 1990 where the emergence of metabolic and nutritional alterations that consisted of weight gain, the amount of body fat and Total Cholesterol levels was demonstrated in the 12-month follow-up [3]. In other studies, non-diabetic men were evaluated for one group received GnRH agonists and the other did not receive it, the data suggest that men with Prostate Cancer who receive long-term Agonists are at risk of developing insulin resistance and hyperglycemia, which leads to an increased risk of cardiovascular disease. This adverse metabolic profile developed independently of age and BMI and appeared to be a direct result of androgen deprivation [4]. Hormonal treatment with GnRH agonists is associated with an increase in Total Cabbage (10.6%), HDL (8.2%), Triglycerides (26.9%) and LDL (7.3%), the latter It is not statistically significant. These changes are already seen after 3 months after the start of the Treatment [5]. In an observational study conducted in more than 73 thousand patients over the age of 66, an attempt was made to assess the risk of diabetes and cardiovascular diseases with the use of GnRH agonists in patients with regional crazy prostate cancer and showed an increased risk of incidental diabetes and cardiovascular disease with a HR of 1.4 for diabetes and 1.16 for coronary heart disease, sudden death and acute myocardial infarction [6].

Regarding the use of GnRH antagonists, whose representative drug is Degarelix, in 2010 this study was published which shows cardiovascular safety data from a randomized controlled trial completed for 1 year with the use of Degarelix compared to Leuproid. The QTc prolongation is <1% for Degarelix and 2% for Leuprolide for those with QTc greater than 500 ms [7]. Another study that aimed to determine if cardiovascular morbidity differs from the initiation of GnRH agonists compared to an antagonist showed an incidence of cardiovascular events close to 30% for both groups. With a similar reduction among men without pre-existing cardiovascular disease. When conducting the analysis in a targeted manner of men with cardiovascular disease, the group with degarelix had a relative risk of death reduction of 56%, while the absolute risk reduction is approximately 8.2% compared to the group that He was administered GnRH Agonists [8]. Based on these studies, the FDA in 2010 reported the incorporation of new safety information for the use of GnRH agonists who increase the risk of Diabetes and certain cardiovascular diseases such as heart attack, sudden death and Stroke

This is why in every patient with prostate cancer it is important to perform a correct cardiovascular evaluation that we can simplify in three pillars, such as laboratory tests, calculation of cardiovascular risk and electrocardiogram.

Within the laboratory tests it is proposed:

- Fasting glycemia
- Glycosylated hemoglobin
- HOMA
- Full Lipid Profile
- TSH
- Creatininemia
- Plasma Electrolytes
- Hepatic Profile

All of the above in order to detect states of diabetes or insulin resistance, dilipidemias, renal dysfunction, thyroid disorder and liver dysfunction.

For the calculation of cardiovascular risk, the use of this website http://www.cvriskcalculator.com is proposed, which, based on data that is easy to extract from the patient, can estimate their risk of cardiovascular events at 10 years, if This is greater than 10% would be considered as a high risk [9].

Finally, the electrocardiogram is essential for the suspicion of heart disease and also for the calculation of QTc. The QT interval is important because its prolongation causes a greater risk of ventricular arrhythmias that could trigger sudden death. Since its measurement is variable according to the patient's heart rate at the time of measurement, its correction according to the established formulas is important, being the most commonly used is that of Bazzet. Bazett proposed that the QTc segment is equal to the QT segment measured in the patient divided by the square root of the RR interval [10].

The most common causes of acquired prolonged QTc are: coronary heart disease, myocarditis, congestive heart failure, cerebrovascular disease, hydroelectrolytic disorders (hypokalemia with hypocalcemia and hypomagnesemia) and use of medications (class I and III antiarrhythmics, astemizoles type antihistamines, phenothiazines, tricyclic and other antidepressants) and GnRH antagonists, so the recommendation is to perform a resting electrocardiogram prior to the start of GnRH Antagonists and Agonists with QTc measurement and every 28 days prior to maintenance doses. Recalling that there is a 12.3 msec Exchange Average with GnRH Antagonists and 16.7 msec with GnRH Agonists in the QT [11]. A prolonged QTc is defined at 470 ms in adult women and 450 ms in adult men [12].

Finally, I recommend the referral to the cardiologist in the following situations:

- When the ECG reports a QTc greater than 480 ms.
- When a patient has a Cardiovascular Risk greater than 10% (High risk).
- When the patient has a Personal History of Cardiovascular Disease (coronary heart disease, cerebrovascular disease, peripheral arterial disease, carotid disease, vascular reindeer disease, atherosclerotic aortic disease), who does not have regular control.

In summary, the work of the oncologist and cardiologist urologist should go in the same line of trying to prolong the life of the patient suffering from cancer in the best way, avoiding the risks of chemotherapies.

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