

# Impact of Hypogonadism on Quality of Life in Men with Coronary Artery Disease

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## Abstract

Today, the issue of improving care for patients with cardiovascular diseases is particularly acute, because despite all the achievements of modern medicine, they remain one of the leading causes of disability and mortality in Europe and the world. Despite the fact that many factors have been established that affect the prognosis and course of cardiovascular diseases, such as arterial hypertension, smoking, gender, obesity, age, diabetes mellitus, obesity, metabolic disorders, etc., [1] their search continues. So, the factor influencing the course of cardiovascular diseases is the presence of androgen deficiency in men. According to studies [2],[3],[4],[5],[6] conducted in world practice, there is evidence that androgen deficiency has a negative impact on the course of cardiovascular diseases, in particular coronary artery disease. However, this issue requires further study. The aim of the study was to study the possible impact of androgen deficiency on the quality of life in men with coronary heart disease.

**Keywords:** androgen deficiency; coronary artery disease; hypogonadism; quality of life

## Introduction

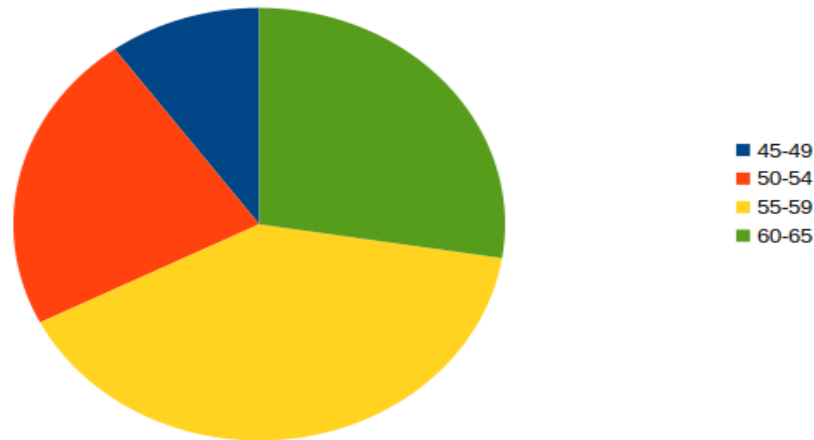
Despite the achievements of modern medicine in the treatment and prevention of cardiovascular diseases, the issues of providing care to patients with cardiovascular diseases, in particular coronary artery disease, remain very relevant, because they occupy one of the leading positions in the structure of disability and mortality both in Europe and in the world. There are many cardiovascular risk factors that we are well aware of, including both non-modifiable ones, such as age, male sex, genetic predisposition, and modifiable ones, such as arterial hypertension, dyslipidemia, smoking, overweight and obesity, metabolic syndrome, diabetes mellitus, etc. However, at the same time, the search for additional factors influencing the course of cardiovascular diseases and/or their prognosis would allow us to better provide care to the population with cardiovascular diseases. Age-related hypogonadism in men remains a

poorly understood cardiovascular risk factor. There have been some studies investigating the effect of hypogonadism on both the course and prognosis of cardiovascular disease in men, but this issue requires further detailed study. The aim of our study was to investigate the possible impact of androgen deficiency in men with coronary artery disease on the quality of life.

## Materials and Methods

The study included 40 male patients with stable coronary arterial syndrome, including such nosological entities as postinfarction cardiosclerosis, atherosclerotic cardiosclerosis, and stable angina pectoris. The mean age of the patients was 56 years [53,5; 60], Me [25%, 75%]. The distribution of patients included in the study by age is shown in figure 1.

Figure 1. Distribution of patients included in the study by age

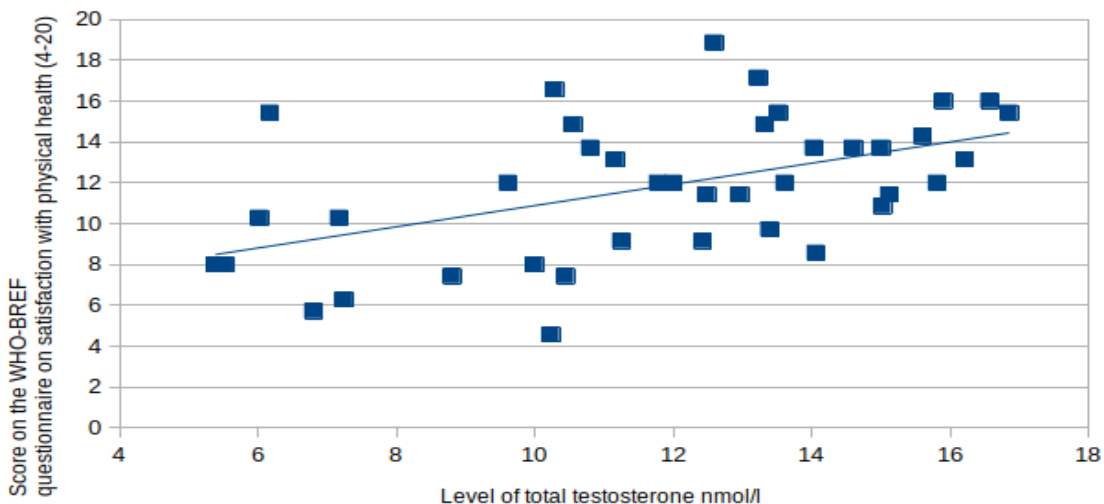


In addition to standard examination methods, which included a clinical examination and routine laboratory (general blood test, fasting blood glucose, biochemical blood test with lipidogram, creatinine, liver enzymes, coagulogram) and instrumental (transthoracic echocardiography, ECG, daily ECG monitoring), patients were determined by the level of total testosterone to assess the presence of androgen deficiency. In addition, patients were asked to take a quality of life survey using the WHO WHO-BREF questionnaire. The questionnaire includes 4 sections for assessing the quality of life: satisfaction with one's own physical health, psychological health, level of social activity and the environment. As a result of the calculation, an assessment of the quality of life is formed for each of the four sections on a scale from 4 to 20 points. Given the non-parametric nature of the distribution of the results obtained, non-parametric criteria, such as the Spearman rank correlation coefficient, were used to calculate the statistics.

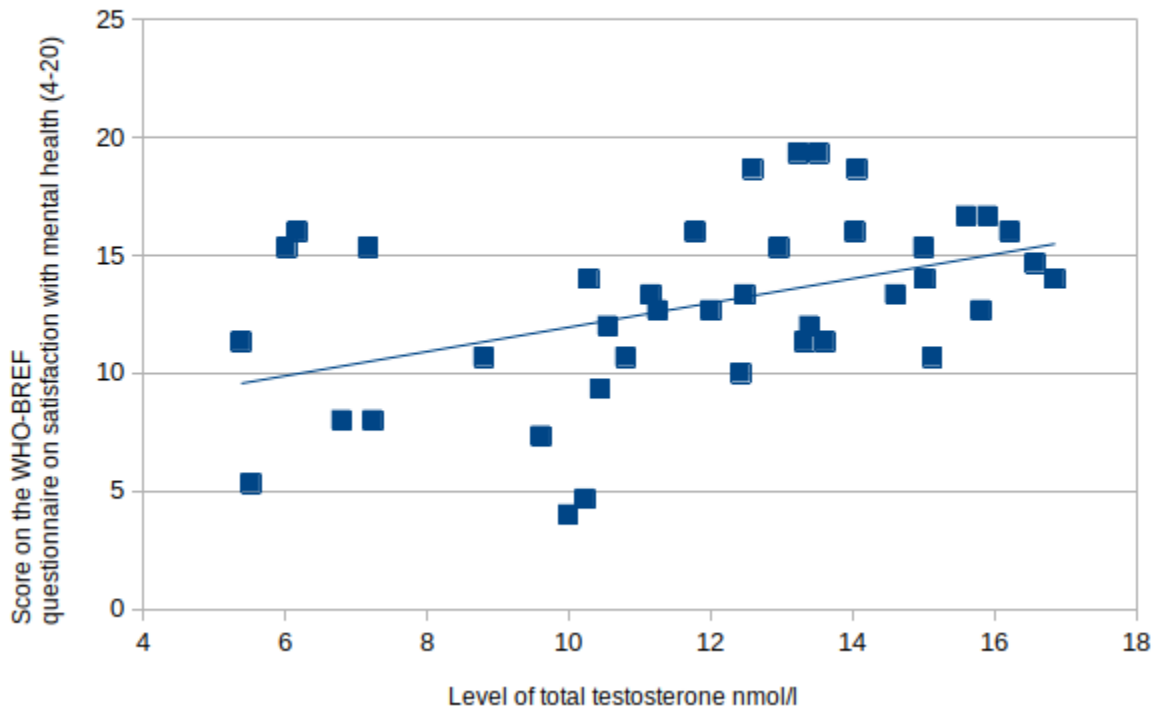
**Results and discussion**

As a result of the study, the average level of total testosterone in patients was 12.45 nmol/l [10,17;14,195], with normal values in the range of 8,6-23,4 nmol/l. laboratory signs of androgen deficiency were detected in 7 patients, which accounted for 17.5% of the total number of patients. In the survey on the WHO-BREF questionnaire, the average score was 12 [9,14; 14,43] in the section of satisfaction with physical health, 13,33 [10,67; 15,5] in the section with satisfaction with psychological health, 12 [8; 16,33] in the section of satisfaction with the level of social interaction and 12,25 [9; 15,13] in the section with satisfaction with the environment. When determining the Spearman rank correlation coefficient, a direct correlation was determined between the level of total testosterone and the level of satisfaction with one's own physical health, the correlation coefficient was 0,5 ( $p < 0.05$ ), as well as between the level of total testosterone and satisfaction with one's own psychological health, the correlation coefficient was 0.47 ( $p < 0.05$ ). The relationship between the level of total testosterone and satisfaction with one's own physical and mental health according to the WHO-BREF questionnaire is shown in figures 2 and figures 3, respectively.

Figure 2. The relationship between total testosterone levels and satisfaction with physical health according to the WHO questionnaire



**Figure 3. The relationship between total testosterone levels and satisfaction with mental health according to the WHO questionnaire**



### Conclusion

The data obtained allow us to state the possible impact of androgen deficiency on the quality of life in men with stable coronary artery disease.

### Conflicts of interest:

There are no conflicts of interest.

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