27. GONADAL FUNCTION IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Introduction. Epidemiological studies prove that androgen deficiency frequently develops in men with type 2 diabetes mellitus (DM), predicts future diabetes risks and increased mortality. Although this link is established, the role of testosterone replacement therapy in type 2 DM has not been fully clarified.

Aim of study. To assess the current evidence on the relationship between endogenous testosterone and type 2 diabetes, the mechanisms that might mediate this relationship and the impact of exogenous testosterone treatment in men with type 2 diabetes.

Methods and materials. A literature review was performed regarding the correlation of hypogonadism and type 2 DM, risks and benefits of testosterone replacement therapy. Source selection was based on PubMed and Google Scholar search engines, from January 2020 to February 2022.

Results. Analysis of the literature found a bidirectional relationship between type 2 diabetes and hypogonadism. The prevalence of hypogonadism is three times higher in type 2 DM, compared to people without diabetes, it has an inverse correlation with age and body mass index, and is a strong independent risk factor for mortality. The pathogenesis of hypogonadism involves dysregulation at all levels of the hypothalamic–pituitary–testicular axis. Reduced testosterone in type 2 DM is due to insulin resistance at CNS receptors, as well as to high concentrations of proinflammatory cytokines, which inhibit gonadoliberin and decrease luteinizing hormone levels. Testosterone replacement therapy has positive effects on carbohydrate metabolism, weight and body composition, erectile function, pharmacological doses induce vasodilation of coronary arteries and are associated with a reduced incidence of angina pectoris. However, testosterone therapy also has certain shortcomings, the most common adverse effect is increased haematocrit, and cardiovascular safety remains controversial. At this point, most authors recommend testosterone replacement therapy only to symptomatic patients with confirmed hypogonadism that persists after reaching glycaemic objectives, in the absence of contraindications, but not to asymptomatic patients or those with decompensated DM.

Conclusion. Hypogonadism is frequently associated in type 2 DM with negative impact on quality of life, sexual function, accentuating metabolic disorders, cardiovascular risks. Considering the benefits and risks associated with testosterone replacement therapy, there is a need for further studies, the ultimate goal being the safe and effective management of hypogonadism in patients with type 2 DM.