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ERECTILE DYSFUNCTION AND METABOLIC SYNDROME

Erectile dysfunction is relevant in modern life, has a tendency to increase. 10-30 millionin the United States, every third older than 40in Russia and CIS countries suffer from ED.

The studies were conducted on 170 patients with erectile dysfunction and metabolic syndrome. During the 54 weeks, the males whose total testosterone level was below 12 nmol/l, waist circumference greater than 94 cm, free testosterone below 2.0 nmol/l and 17-25 to 5-7 scores per IIEF rating, were administered the drug. The study showed an inversely proportional relationship, "the lower the level of testosterone, the greater waist circumference". Normalization of testosterone resulted in the elimination of clinical hypogonadism.

Key words: *Erectile dysfunction, testosterone, metabolic syndrome, hypogonadism, waist circumference.*

Erectile dysfunction is a progressive disease, the prevalence of which is almost twice the rate of coronary heart disease. 5% among 40-year-old men complain about a complete moderate erectile dysfunction and 17% about moderate erectile dysfunction [3]. This defines the most important socio-economic importance of its diagnosis and treatment.

Pathogenesis of erectile dysfunction of the patients with metabolic syndrome is multicomponent and is caused by a significant shortfall of arterial blood by narrowing the blood vessels, some of the causes of which are disorders of fat metabolism and decrease the level of sex hormones.

Many studies have shown that low testosterone in adiposis is due to the high level of leptin, the hormone of adipose tissue [4]. According to different authors patients having the metabolic syndrome, suffer from erectile dysfunction at 26 – 76% of cases and it is difficult to treat [5, 6]. Drugs to be chosen for the treatment of erectile dysfunction are the phosphodiesterase (PDE-5), but the treatment of patients with metabolic syndrome not always lead to the desired result. [7] Lack of effect of therapy, many authors attribute to the low level of testosterone of these patients [1, 8, 9].

The purpose of the study

To determine the clinical effectiveness of substitutive hormonotherapy by testosterone undecanoate drug in treatment of erectile dysfunction of men with metabolic syndrome.

Materials and Methods

170 patients aged 45 to 76 have been observed, mean age 61,1 ± 0,58, suffering from erectile dysfunction and metabolic syndrome who treated with testosterone undecanoate for 54 weeks. Inclusion criteria were men with total testosterone level below 12 nmol/l, free testosterone below 2.0 nmol\l, waist circumference more than 94 cm and the rating of erectile function per IIEF from 17-25 to 5-7 points. In addition, the blood sugar, LH, FSH, prolactin was determined if necessary. According to indications the transrectal prostate ultrasound investigation, vascular USDG of the penis, and computer monitoring of spontaneous erections were conducted.

Findings

Patients studied were split by age as follows: 135 (79,4%) men aged 45-56, 25 (14,7%) aged 57-66 years, 10 (5,9%) aged 67-76 years.

The largest share estimates, 76,5% (130 men) fell within the moderately mild to moderate erectile dysfunction traced in all age groups. 127 men (74,7%) of those were of 45 to 66 years. Mild erectile dysfunction of the men over 57 years has never been determined.

Measuring waist circumference showed that a core group was made up of young men aged 45-56 years, suffering from erectile dysfunction, with waist measurements from 110 ± 0,18

to 115 ± 0,16 cm, 37,1% and 50%, respectively. Comparison of the data of the waist circumference and testosterone level showed an inversely proportional relationship: the lower the level of testosterone, the greater waist circumference. Figure 1 clearly shows: in our study, testosterone 9,8 nmol/l corresponds to the largest waist size of 115 cm. In contrast, the highest concentration of testosterone 11,6 nmol/l at the waist circumference 102 cm.
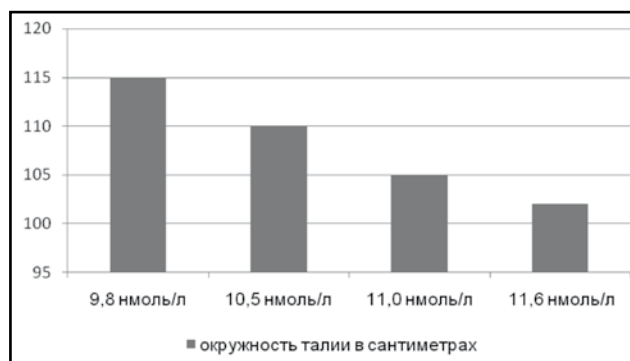

Figure 1 – Waist circumference and testosterone level of the patients with metabolic syndrome and erectile dysfunction

All men were intramuscularly administered testosterone undecanoate 4 injections of conventional scheme.

The survey was conducted before the introduction of each injection. Upon the 54th week of substitutive hormonotherapy there was a significant decrease in body mass, waist circumference. Table 1 shows the reduction in the proportion of men with a waist size of 115 cm from 50% to 10%. Normalization of the concentration of sex hormones at 117 (68%) men led to the elimination of clinical signs of hypogonadism: improved general condition, headaches, fatigue, and joint pain disappeared, sexual activity increased. Normal rating of erectile function per IIEF, 26 points and above were obtained by 37 (22%) patients.

Table 1 – **Waist of the patients aged 45 to 76 years with erectile dysfunction and metabolic syndrome before and after HRT testosterone undecanoate**

Waist circumference in cm	Before treatment (%)	After treatment (%)
92±0,15		14
102±0,21	2,4	26
105±0,11	10,6	38
110±0,18	37	19
115±0,16	50	3

Findings

The findings suggest that substitutive hormone therapy by testosterone undecanoate of men with erectile dysfunction and metabolic syndrome leads to a significant reduction in symptoms of hypogonadism, improvement of erectile function and a significant reduction in waist circumference.

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ЭРЕКТИЛЬДІК ӘРЕКЕТСІЗДІҢ ЖӘНЕ МЕТАБОЛИЗМ СИНДРОМЫ

Әдебитеттің қазіргі заманғы деректері бойынша 40 жастан үлкен әрбір үшінші ер адам ЭӘ ауырады. Метаболизм синдромымен ауыратын ер адамдарда ауру 76%-ға дейінкездесіп, қиын емделеді.

Біз эректильдік әрекетсіздікпен ауыратын 45-76 жас аралығындағы метаболизм синдромымен ауыратын 170 ер адамдарға зерттеу өткіздік. Оларға жалпы-қабылданған схема бойынша 54 апта бойы тестостерон ундеканоатпен емдеу жүргізілді. Барлығында жалпы тестостеронның деңгейі 12 нмоль/л төмен, бос тестостеронның деңгейі – 2,0 нмоль/л төмен, белінің көлемі94 см астам және МИЭФ шкаласы бойынша бағалануы 17-25 балдан бастап 5-7 балға дейін болды.

Белдің айналасын және тестостеронның деңгейін салыстыра бағалау кері үйлесімді тәуелділікті көрсетті: «тестостеронның деңгейі неғұрлым аз болса, белдің айналағы солғұрлым көп болады». Зерттеу біткен соң дене массасының, бел айналасының индексінің шынайы төмендеуі байқалды.

Алынған деректер эректильдік әрекетсіздікпен және метаболизм синдромымен емделушілердің орынбасарлық гормон-терапиясының гипоганадизмнің белгілерінің төмендеуіне, эректильдік функцияның жақсаруына және белдің айналасының елеулі азаюына әкелетінін көрсетті.

Р Е З Ю М Е

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ЭРЕКТИЛЬНАЯ ДИСФУНКЦИЯ И МЕТАБОЛИЧЕСКИЙ СИНДРОМ

По современным данным литературы каждый третий мужчина старше 40 лет страдает ЭД. У мужчин с метаболическим синдромом этот недуг встречается до 76% и плохо поддается лечению.

Нами проведено исследование 170 мужчин с метаболическим синдромом в возрасте 45-76 лет, страдающих эректильной дисфункцией, всем проводилось лечение тестостероном ундеканоатом в течение 54 недель по общепринятой схеме. У всех общий тестостерон был ниже 12 нмоль/л, свободный тестостерон меньше 2,0 нмоль/л, объем талии больше 94 см и оценка по шкале МИЭФ от 17-25 до 5-7 баллов.

Сравнительная оценка окружности талии и уровней тестостерона показала обратно пропорциональную зависимость: «чем меньше уровень тестостерона, тем больше окружность талии». По окончании исследования отмечалось достоверное снижение индекса массы тела и объема талии.

Полученные данные показывают, что заместительная гормонотерапия у пациентов, страдающих ЭД и метаболическим синдромом, приводит к снижению признаков гипогонадизма, улучшению эректильной дисфункции и значительному уменьшению окружности талии.