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Combined Therapy of the Erectile Dysfunction in Patients with Arterial Hypertension

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The investigation of the effectiveness of the combined therapy with sildenafil, sildenafil and tivortin,sildenafil ,tivortin and LNP therapy was carried out in 120 hypertensive patients with erectile dysfunction. The patients were divided into several groups. Group I (25 patients) got therapy with inhibitors of phosphodiasterase of 5 type (sildenafil) on demand; Group II(25 patients) got sildenafil in a dose of 50mg every other day; Group III (25 patients) – sildenafil in a dose of 50mg every other day + tivortin; Group IV (25 patients) – sildenafil +tivortin+LNP therapy; Group V (20 patients) was a group of comparison. The final estimation of the effectiveness of complex therapy in a month showed good and perfect results in 96,0% of patients of Group IV and 84,0% of patients of Group III. Poorer results were revealed in patients of Group I and Group II. In Group V indexes didn't change but in 2 patients (10,0%) results worsened. On the basis of carried out investigation it was established that tivortin and LNP therapy improved treatment.

Keyword: Erectile Dysfunction, IIEF, Sildenafil, Tivortin, LNP Therapy.

1. Introduction

Erectile dysfunction (ED) is a typical complication of an arterial hypertension (AH) which among other more studied complications such as : micro- and macroangiography, retinopathy etc. often causes damage to patients' health and also initiates and keeps a depression .It was established that ii 80% of cases it occurs due to various organic substances and 20% of cases constitute psychological factors. From all etiological and organic factors of sexual disorders 70% of cases constitute a vascular erectile dysfunction. Such percentage demands the search of prolonged, safe and effective treatment of ED with the following cardiopathology.

In hypertensive patients NO production is low, which is a vasodilator released from endothelium of vessel cavernous tissue in a sexual stimulation. In turn, NO causes an increase of cyclic guanosine monophosphate level of blood vessels' smooth muscles of penis. It causes blood flow and erection. The reverse effect is detumescence, which occurs as a result of cyclic guanosine monophosphate breakdown in the cavernous tissue under the influence of enzyme of phosphodiasterase of type 5 (PDE 5). That's why, sildenafil is used for the treatment of ED.

In a range of the controlled investigations the safety, good tolerance and high effectiveness of sildenafil use for more than 3700 cardiac patients aged 19-87 were proved. This medication was the first widely used in clinical practice.

Due to prognostic data of experts in the nearest 15 years a number of patients with ED will increase intensively. The spread of the given pathology requires the search of new methods of diagnostics and improvement of ED treatment. Some patients which got sildenafil monotherapy didn't notice positive results. Such patients undergo LNP therapy, therapy with

intracavernous injections and surgery. Lack of efficacy , contraindications and side-effects of medicines which are in the disposal of an andrologist for ED treatment initiates the research of new pharmaceuticals and carrying out of the complex therapy schemes on the basis of the well- known medications. The promising way is a simultaneous effect on various stages of etiology and pathogenesis of ED with the combined therapy. Positive effect of a simultaneous prescription of medications of various groups intensifies synergic effect of the common positive one and allows to reduce the dose of inhibitors PDE 5 and their side-effect (in patients with an accompanied cardiac pathology).

Aim of the research

The aim of the research is to investigate the effectiveness of combined therapy with sildenafil, tivortin and LNP therapy in hypertensive patients with ED.

2. Materials and methods

The examination and complex therapy of 120 hypertensive patients with ED were carried out. The patients were divided into several groups such as: Group I (25 patients), which got therapy with inhibitors of phosphodiasterase of 5 type (sildenafil) on demand; Group II(25 patients) got sildenafil in a dose of 50mg every other day; Group III (25 patients) – sildenafil in a dose of 50 mg every other day + tivortin; Group IV (25 patients) – sildenafil +tivortin+LNP therapy; Group V (20 patients) was a group of comparison. To reveal ED in male with arterial hypertension and to estimate the effectiveness of the used therapy special questioner was used. International Index of Erectile Function – IIEF includes 15 questions. Patient's answer to every question was estimated in scores (from 1 to 5);the higher total number of scores the better sexual function of a male. The subunit of an erectile function included 6 questions, maximal total number of scores was 30, ED was diagnosed in less than 26 scores. The stage of ED sign was established depending on the total number of scores: 21-25 scores – the absence of sexual dysfunctions, 16-20 scores – mild form of ED, 11-15 scores – moderate ED and 5-10 scores – severe ED.

To improve the effectiveness of treatment and to provide prolonged therapy, patients of Group 3 and Group 4 were given tivortin (an active substance arginine, a substrate for NO – syntase,an enzyme which catalizes nitrogen oxide synthesis in endotheliocytes. The medication activates gyanilatcyclase and increases the cyclic gyanidinmonophosphate level (cGMF) in an endothelium of vessels, reduces the activity and adhesion of leukocytes and thrombocytes to the endothelium of vessels, inhibits of endothelin -1 synthesis, which is a potent vasoconstrictor and stimulator of polyferation and migration of smooth myocytes of a vascular wall. Patients of Group IV were given a conservative therapy with physiotherapeutic procedure – LNP therapy. In this therapy penis was placed in a transparent mini chamber and exhausting was created. In such conditions the inner blood pressure on the vessels' wall is higher than outer one on the created pressure (0, 2-0,4 MPa) thus, blood flow to the cavernous tissue occurs. Additional nonfunctional arterial sources and the intensive enrichment of the cavernous tissue with oxygen are revealed. It causes the intensity of NO release. The intensity of cavernous tissue's blood flow blocks a venous flow, which is the main mechanism of the erection rise. Patients of all groups got an individual recommendation on keeping the healthy way of life (proper diet, preservation of day regimen and the regimen of an outdoor walking).

Patients aged 34-65 took part in the investigation got baseline therapy. It was defined that their body weight was 78, 3±5, 2 kg, an index of body weight was 25, 6±2,3 kg/m^2,arterial hypertension of type II. The signs of an endocrine and psychogenic ED were excluded. The effectiveness of carried out therapy was analyzed in a month of the given therapy. Safe effect of medications due to the absence of side effects during the course of treatment was estimated. The effectiveness of therapy was perfect, when indexes of erectile function increased more than 50%, good results were in 25-30% of cases, satisfactory ones in indexes' improvement to10%

and bad results were noticed in the decrease of indexes above 10%.

3. Results of investigation and discussion

All patients finished the investigation and their data were matched in the analyses of the investigation results. As for the complaints of treatment the impaired adequate erections, ejaculation disorder, orgasm disorder and libido decrease were noticed the most often.

In a month from the beginning of treatment the index of EF increased in Group2, Group3 and Group4. But in Group3 of patients got sildenafil+tivortin and Group4 with sildenafil, tivortin and LNP therapy indexes were much better (figure1). Thus,in patients of Group4 perfect effect of therapy was noticed in 19 patients (76,0%), good – in 5(20%), satisfactory – in1 patient (4,0%) . In patients of Group 3 perfect effect was in 15 patients (60,0%), good – in 6 (24,0%) and satisfactory in 4 patients (16,0%). The final estimation of the effectiveness of complex therapy showed perfect and good results in 96,0% of patients of Group4 and 84,0% in patients of Group3. Worse results were revealed in patients of Group1 i.e. satisfactory result in 21 patient (84,0%), perfect result in 10 patients of Group2 (25,0%) and in 12 patients (48,0%) satisfactory result were noticed. In Group5 (a control group) the indexes of erectile function were not changed. 2 patients (10,0%) had bad results. During the course of treatment side effects were not revealed in four groups of patients.

Table1: Index changes of IIEF due to questioning of the patients

IIEF indexes after a month of treatment	Group1 (n=25)	Group2 (n=25)	Group3 (n=25)	Group4 (n=25)	Group5 (n=25)
Varied indexes≥ 50% from primary ones	-	10 (25,0%)	15 (60.0%)	19 (76,0%)	-
good≥25-30%	4 (16,0%)	12 (48,0%)	6 (24,0%)	5 (20,0%)	-
satisfactory≥10%	21(84,0%)	3 (12,0%)	4 (16,0%)	1 (4,0%)	-
bad≤ 10%	-	-	-	-	2(10,0%)

Thus, the obtained data show much effect of complex treatment of male with erectile dysfunction, which suffer from arterial hypertension, including tivortin and LNP therapy. With LNP therapy the treatment effect of arterial erectile dysfunction is notably improved. The effectiveness of this treatment scheme shows antihypoxic and antioxidant action of tivortin. Thus, the role of NO in a genesis of ED in hypertensive patients takes an important part. LNP therapy contributes to the defining of new non-functional sources of arteries, and intensive enrichment of cavernous tissue with oxygen takes place and it contributes to NO release.

4. Conclusions

The use of tivortin and LNP therapy in addition to sildenafil in hypertensive patients with ED allows to improve the effectiveness of treatment and such therapy may be recommended for the wide use. Further investigations allow improving the results of treatment in hypertensive patients with ED.

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