



ANTIHYPERTENSIVE TREATMENT OF METABOLIC SYNDROME (OVERVIEW)

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ABSTRACT

Metabolic Syndrome (MS) is an interdisciplinary problem gaining more and more popularity and considerable social and economic significance.

There are two main directions in the treatment of metabolic disorder:

Modification of the main reasons (treatment of overweight and obesity, treatment of reduced physical activity and insulin resistance);

Direct medicamentous treatment of the risk factors (atherogenic dyslipidemia, arterial hypertonia, treatment of pro-inflammatory conditions)

An overview has been made of the antihypertensive medicines applied for the treatment of arterial hypertonia in MS.

Key words: Metabolic syndrome, arterial hypertonia, dyslipidemia

The availability of metabolic syndrome is associated with multiple increase of the risk of cardio-vascular diseases and death. In these patients, along with the recommendations for change in the lifestyle, the medicines for hyperglycemia and dyslipidemia, also medical treatment of arterial hypertonia is prescribed. It is important to note that the antihypertensive medicines prescribed to patients with MS should not only effectively control arterial tension /AT/ but also should influence positively the metabolic changes /N. Shostak, D. Anichkov, 2007/.

Advisable in their capacity of “first-line” medications are the thiazide diuretics, especially in high doses. β adrenoblockers can have unfavourable influence on the lipid exchange and can deteriorate the insulin resistance. “Metabolically neutral” are the following groups of medicines: β – adrenoblockers, the new centrally active medicines – agonists to the imidazoline receptors, Ca – antagonists and ACE-inhibitors.

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The European Society of Hypertension and the European Society of Cardiology /2007/ recommend in case of sugar diabetes five groups of antihypertensive medications to be considered, which can be applied either independently or in combination – ACE – inhibitors, angiotensin-receptor blockers /ARB/, Calcium antagonists, beta-blockers and thiazide diuretics /Tsv. Tankova, 2010, L. Ryden et al, 2007, K. Swedberg et al, 2005, V. Fuster et al, 2006/. Preference is given to medications reducing the frequency of appearance of new sugar diabetes and those which are metabolically neutral /N. Gocheva, 2010/.

Patients with MS and arterial tension in the range of so called high normal values have a higher risk of progression of the syndrome. According to N. Gocheva /2010/, G. Mancia et al /2006, 2007/, the medications used for treatment of arterial hypertension in MS should reduce insulin resistance /IR/, should not lead to deterioration of the lipid profile and of the glucose levels. They should be effective at reaching the marginal values.

It is important to know that the inhibitor of renin – angiotensin – aldosterone system should be taken into consideration as a first-

choice means when conducting monotherapy or as an important component in case of combined therapy /Tsv. Tankova, 2010, N. Gocheva, 2010, M. Grigorov, 2011/. The medicines preferred in cases of sugar diabetes should be ACE-inhibitors and ARB /L. Ryden et al, 2007/. In the availability of microalbuminuria or diabetic nephropathy, the treatment should mandatorily include ACE-inhibitors or ARB.

Preference should not be given to beta-blockers and thiazide diuretics as first-choice medications since they can deteriorate IR and lead to increase in the dose of anti-diabetic medicines /Tsv. Tankova, 2010, N. Gocheva, 2010, V. Fuster et al, 2006/. According to N. Gocheva /2010/, the combination of diuretics with beta-blockers as first-choice line must be avoided.

For the purpose of comprehensiveness we have described some of the groups of antihypertensive means.

β adrenoblockers in patients with MS and insulin resistance lead to increased sensitivity of the tissues to insulin, according to a number of authors /N. Shostak, D. Anichkov, 2007/. At this stage β adrenoblockers appear to be “second-line” medications for hypertension treatment in MS.

Beta-blockers can be chosen for treatment of AH in MS only in cases of clinical conditions requiring their application /IBS, SN/, /N. Gocheva, 2010/, /G. Mancia et al, 2007/.

Agonists of imidazoline receptors.

Since the increase in AH and the development of insulin resistance in MS is connected with hyperactivation of the sympathetic nervous system /one of the many pathogenic theories/, the prescription of medications decreasing its activity is substantiated. The quoted agonists with central activity reduce sympathetic activity. Clinical trials with intake of rilmenidine and moxonidine – two of the main agonists of imidazoline receptors have proven good hypotensive efficiency. It is worth noting that the prescription of agonists of imidazoline receptors to patients with MS is substantiated from pathogenic point of view but should be confirmed by means of extended controlling tests.

Calcium antagonists.

Calcium antagonists do not have an unfavourable impact on the lipid and carbohydrate exchange. Generally prescription of dihydropyridine Ca-antagonists with extended effect has been proven in MS and requires confirmation in AH in combination with sugar diabetes type 2.

ACE – inhibitors.

This class of antihypertensive medicines is most advantageous for patients with MS and sugar diabetes type 2, including those with nephropathies /N. Shostak, D. Anichkov, 2007, Tsv. Tankova, 2010, N. Gocheva, 2010/. Therapy with ACE inhibitors leads to decrease in the risk of cardio-vascular complications and death. At this contemporary stage ACE – inhibitors and especially lisinopril /Diroton/ are the right choice for the treatment of patients with AH and MS. Diroton has a favourable effect on the round-the-clock rhythm of AH /a single intake/ and the level of HDL cholesterol is also increased. Incorrect treatment of AH in MS often leads to development of coronary cardiac disease, brain insult, left-chamber hypertrophy, cardiac insufficiency and chronic kidney insufficiency /D.Aronson, E. Rayfield, 2002, S. Grundy et al, 2004/.

The values of AH in MS with hypertonia after medical treatment must be maintained below 130/80 /N. Gocheva, 2009, 2010/. Similar are the objectives and even lower is the threshold for inclusion of medicines in cases of MS with initially high risk of occurrence of cardio-vascular disease.

According to G. Mancia et al /2007/ the medicines used for treatment of arterial hypertonia in MS should reduce insulin resistance. They should not lead to deterioration of the lipid profile and glucose levels. They should be effective in reaching the targeted values /AH<130/80/.

The recommendations of the European Cardiology Society for selection of medicines for patients with MS and AH indicate as first-line choice ACE inhibitors, ARB and/or calcium antagonists.

Diuretics and β blockers can be chosen for treatment of AH in MS only in cases of accompanying clinical conditions requiring their application – for example ischaemic heart disease, cardiac insufficiency. If a combination

of medicines is required, it is advisable to use diuretics in low doses /N. Gocheva, 2009, 2010/.

According to Vl. Hristov /2009/ and in our opinion, as a conclusion of the paragraph referring to antihypertensive therapy of MS, it can be summarized that in all patients with already expressed diabetes type 2 and AH values > 130/80 medicamentous treatment should be included. Irrespective of the overview – as regards to the issue of medicine of choice – there has not been identified such yet despite the optimistic announcements about the effect of diroton. Identical are the announcements of K. Alberti et al, 2005, C. Apovian et al, 2008. At this stage the preferred medicines for treatment of AH in case of sugar diabetes should be ACE-inhibitors and ARB.

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