



Arterial Hypertension

Introduction

1. Medical condition

Arterial Hypertension

2. Diagnosis

A. Medical history

Hypertension may be either primary or secondary. Primary or essential hypertension is of unknown etiology and constitutes the predominant group. However evidence of a history of sustained elevated blood pressure (BP) is mandatory for the consideration of a therapeutic use exemption to use prohibited medications.

Secondary forms of hypertension are rare and the origin could be: renal parenchyma disease, renovascular hypertension, coarctation of the aorta, pheochromocytoma, Cushing syndrome, primary aldosteronism, obstructive sleep apnea or drug induced. Treatment of secondary forms of hypertension differs widely.

B. Diagnosis criteria

The diagnosis of hypertension must be accompanied by an appropriate family and clinical history, documented elevated recordings of systolic and/or diastolic blood pressure and a report of the physical examination. Other investigations such as ECG, echocardiography, vascular ultrasonographic examinations may be considered in special cases. Laboratory investigations may be necessary to search for other medical conditions and risk factors particularly in the search for causes of secondary hypertension. A hypertensive emergency is diagnosed when marked rises of high blood pressure occurs with the possibility of acute damage to vessels and target organs. Such emergencies are rare but can be life threatening and therefore treatment must start promptly. Appropriate care must be taken during treatment to avoid precipitous drops in blood pressure.

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Arterial Hypertension*

C. Relevant medical information

Evidence of a sustained trial of non-prohibited agents must be included in the medical information or there must be a clear reason from a specialist physician why a prohibited agent is chosen over a permitted one.

3. Medical best practice treatment

The decision to start antihypertensive treatment should be based on 2 criteria: the repeated measurement of systolic and diastolic blood pressure and the level of total cardiovascular risk.

A) Name of prohibited substance:

1) Beta-blockers are indicated in patients with angina pectoris, heart failure and recent myocardial infarction. However, the use of beta-blockers as a first-line treatment in hypertensive patients having no other risk factors is questionable as recent studies show possible side effects such as reduced ability to protect against stroke and adverse effects on lipid metabolism and new onset diabetes (contraindication with multiple metabolic risk factors).

2) Diuretics (mostly thiazide) are still a well accepted treatment. Loop diuretics are not generally a first-line treatment as there are more side effects and are reserved usually for more special circumstances. Diuretics are indicated in heart failure and prevention of secondary stroke.

3) Monotherapy may not be sufficient to achieve effective blood pressure control in some patients. In some cases medical best practice could be a combination therapy such as the use of beta-blockers and diuretics or for example the combination of an ACE-inhibitor or AGII inhibitors' (both permitted) with hydrochlorothiazide.

B) Route

All agents may be administered orally. It is rare that intravenous anti-hypertensive medication would be necessary in the case of a true hypertensive emergency.

C) Frequency

Daily doses of medication may include a single or a combination therapy protocol.

Medical Information to Support the Decisions of TUECs

Arterial Hypertension

D) Recommended duration of treatment

The treatment of arterial hypertension should start before significant cardiovascular damage develops and is usually life-long. In the case of an active competitive athlete, it is recommended that once the blood pressure is well controlled, regular follow-up should be continued with by treating medical practitioner or specialist. See point 7, TUE validity for more information on duration.

4. Other non-prohibited alternative treatments

Lifestyle measures should be instituted, whenever appropriate, in all patients, to lower blood pressure, to control other risk factors and clinical conditions. However they should never delay unnecessarily the initiation of drug treatment. Treatment could include:

- Weight reduction and stabilization,
- Dietary advice, reduction of salt intake, decrease in saturated and total fat, increase in fruit and vegetable consumption,
- Exercise prescription,
- Smoking cessation,
- Reduce of excessive alcohol intake
- Non-prohibited medications may include for example calcium channel blocking agents, ACE inhibitors, Angiotensin II receptor blocking agents and alpha-adrenergic blockers, renin inhibitors.
- Other medications may need to be considered to treat associated risk factors. Medications could include: lipid lowering agents, antiplatelet therapy, and medication for glycaemic control. Be aware that some medication may require a separate TUE.

5. Consequences to health if not treated

Untreated hypertension is unequivocally linked to an increased risk in particular of left ventricular failure, myocardial infarction, a cerebrovascular accident or renal failure. Appropriate treatment of hypertension is a necessary element of good medical practice. Ideal BP control is even more imperative when co-morbidities (e.g. diabetes and obesity) exist.

6. Treatment monitoring

During the drug titration phase patients should be seen every 2 to 4 weeks to adjust the treatment. Instruction of self-measurement of BP at home should be given at the same time. Once the therapeutic goal is reached, frequency can be reduced to every 6-month. It is recommended to achieve a target BP of lower

Medical Information to Support the Decisions of TUECs

Arterial Hypertension

than 140/90. A lower BP should be reached in diabetics and in high risk patients.

Routine monitoring of blood pressure may be at the discretion of a medical practitioner with reference to a specialist as appropriate depending on the country healthcare system.

7. TUE validity and recommended review process

Any changes to the therapeutic regimen should be well documented, endorsed by a medical practitioner and form the basis of a revised TUE. The maximum recommended duration of a TUE is four years. The athlete is advised to keep a record of initial diagnostic information to send along with a current note from a specialist in case reapplication is necessary. An application for a TUE will be considered for retroactive approval in cases of acute hypertensive emergency.

8. Any appropriate cautionary matters

Note that beta blockers are prohibited only in certain sports. Please consult the current WADA Prohibited List. The use *In-* and *Out-of-Competition*, as applicable, of any quantity of a substance subject to threshold limits (i.e. salbutamol, morphine, cathine, ephedrine, methylephedrine and pseudoephedrine) in conjunction with a diuretic or other masking agent requires the deliverance of a specific Therapeutic Use Exemption for that substance in addition to the one granted for the diuretic or other masking agent.

9. References

1. European Society of Hypertension- European Society of Cardiology 2007 Guidelines for the management of arterial hypertension European Heart Journal (2007)28 : 1462-1536 doi:10.1093/eurheartj/ehm6
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3. KDOQI clinical practice guidelines for chronic kidney disease: Evaluation, classification, and stratification. Kidney Disease Outcome Quality Initiative. Am J Kidney Dis 39:S1-S266, 2002 (suppl 2)