

Improving the System of Care for Patients Suffering from Arterial Hypertension



Russian Federation - United States of America
2001

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The Health Committee

Access to Quality Health Care

Ministry Of Health
Russian Federation

Central Public
Health Research
Institute (CPHRI)



Tula Oblast
Department of Health
Russian Federation

The Eurasian Medical
Education Program—
The American
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Agency for Health
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The Quality Assurance
Project

University Research
Co., LLC
Center for Human
Services



QUALITY ASSURANCE PROJECT



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The Health Committee

“Access To Quality Health Care” Priority Area

Improving the System of Care for Patients Suffering from Arterial Hypertension

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Bethesda, MD, USA

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Preface

The work presented in this clinical guideline was conducted under the US-Russia Joint Commission on Economic and Technological Cooperation, Health Committee, Access to Quality Health Care priority area.

The Russian partners in this collaboration included the Ministry of Health, Russian Federation, Central Public Health Research Institute (former MedSocEconInform), Health Department of Tver Administration.

On the Russian part, consulting services were rendered by representatives of Sechenov Moscow Medical Academy.

The US partners in this collaboration included The Agency for Health Care Policy and Research and the Quality Assurance Project, implemented by University Research Co., LLC/Center for Human Services, Bethesda, MD, USA.

On the American part, the project was consulted on by specialists of the Eurasian Medical Education Program.

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Title of the Document: Guideline "Medical Care Provided by General Practitioners for Patients with Hypertension"

Stages of Provision of Medical Care: Primary care provided by general practitioners

Institutions Using the Protocol: Tula Oblast Health Care Department
Tula Oblast Center for Medical Prophylactics
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Alexin District Health Care Department
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Project Stage: Implementation of the redesigned system of care

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Table Of Contents

1. Professionals and consultants who participated in the development of the Guideline	1
1.1. Guideline Developers	1
1.2. Project Team	2
1.3. Acknowledgments	3
2. List of Acronyms	4
3. Definitions of Commonly Used Terms	5
4. Introduction	7
4.1. Background	7
4.2. Goals for Guideline Development	7
4.3. Guideline Development Methods	8
4.4 Scope of application and purpose of the guideline	10
4.4.1. Clinical Description of the Guideline	10
4.4.2. Target Groups	13
4.4.3. Guideline Users	13
4.4.4. Expected Results from Guideline Implementation	14
4.5. Structure and Principles of Guideline Development and Implementation	15
5. The Entire Process of Health Care Delivery Described in the Guideline	15
5.1. Algorithm of Process	15
5.2. Description of Process	15
5.3. Provision of Health Care Delivery	16
5.3.1. Personnel	16
5.3.2. Medications	16
5.3.3. Equipment	16
6. Management of AH	17
6.1. Screening for AH	17
6.1.1. Objectives of Screening and Expected Results	17
6.1.2. Screening Resources	17
6.1.3. Algorithm of Screening	18
6.1.4. Duties of General Practitioner and Medical Nurse to Detect and Register Patients with AH:	18

6.2. Outpatient Management	18
6.2.1. Objective and Expected Results of the Stage	18
6.2.2. Requirements for Keeping Control Charts and Card Index	18
6.3. Health Improvement Program for Patients with AH.....	20
6.3.1. Objectives and Expected Outcomes	20
6.3.2. Resources for Health Promotion Program for Patients with AH	20
6.3.3. Program Algorithm	23
6.3.4. Criterion for Starting Medication Treatment.....	23
6.4. Diagnostic Examination	23
6.4.1. Objectives and Expected Result of the Stage	23
6.4.2. Equipment	23
6.4.3. Algorithm of Diagnostic Examination.....	23
6.5. Treatment	24
6.5.1. Objectives and Expected Results of the Stage	24
6.5.2. Human, Equipment and Medication Resources	24
6.5.3. Treatment Algorithm.....	25
6.5.4. Criteria for Outpatient Management.....	32
6.6. Outpatient Management of Patients with AH	32
6.6.1. Objectives and Expected Results of the Stage	32
6.6.2. Equipment	32
6.6.3. Algorithm of Outpatient Management.....	32
6.6.4. Criteria for hospitalization	32
Appendix	35

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2. Acronyms

ACE	Angiotensin Converting Enzymes
AH -	Arterial Hypertension
BP	Blood Pressure
DAP	Diastolic Arterial Pressure
ECG	Electrocardiogram
GP	General Practitioner
HR	Heart Rate
LV	Left Ventricle
mmHg	Millimeters of Mercury column
SAP	Systolic Arterial Pressure
WHO	World Health Organization

3. Definitions of Commonly Used Terms

Aortography – roentgenologic study of the aorta and its branches at the infusion of the contrast substance.

Arrhythmia – changes in cardiac rhythm and heart rate.

Arterial Hypertension (AH) – AH equal or over 140/90 mmHg registered at least three times within two months.

Borderline AH – SAP 140-149 mmHg, DAP 90-99 mmHg.

Control charts – a list of control charts of patients with AH that include history taking, diagnostics, dynamic observation and treatment, result assessment.

Diabetic nephropathy – specific renal lesion immanent to diabetes mellitus characterized by arterial hypertension.

Diastolic dysfunction of the left ventricle – impaired relaxation of the left ventricle myocardium in diastole.

Hypertrophic cardiomyopathy – hypertrophic cardiomyopathy without obstruction characterized by a uniform thickening of the left ventricle wall and interventricular septum. Ventricle cavity size is normal or reduced. Hypertrophic cardiomyopathy with obstruction is characterized by diffusive hypertrophy of the left ventricle together with disproportional hypertrophy of the upper two thirds of the interventricular septum that results in subaortal stenosis of the aorta and impaired blood drainage from the left ventricle. (synonym is hypertrophic subaortal stenosis).

Mild AH – SAP 140-159 mmHg, DAP 90-99 mmHg.

Moderate AH – SAP 160-179 mmHg, DAP 100-109 mmHg.

Post-load – an overall peripheral and intra-aortal resistance.

Pre-load – indicators of venous return of the blood, pressure of the lesser circulation vessels, infill pressure of the left ventricle.

Renovascular AH – AH caused by renal artery pathology, i.e. stenosis, fibromuscular dysplasia.

Screening – purposeful examination in order to detect individuals with a certain pathology. AH screening is a detection of individuals with AH during examination of a considerable population flow.

Severe AH – SAP equal or over 180 mmHg, DAP equal or over 110 mmHg.

Sinus bradycardia - reduced HR <60 per minute.

Sinus node weakness syndrome – sinus node dysfunction clinically manifested in tachycardia and bradycardia syndrome.

Systolic dysfunction of the left ventricle – impaired contraction of the left ventricle myocardium.

4. Introduction

4.1. Background

This clinical guideline was developed as part of the demonstration projects in quality assurance. The clinical guidelines describe the clinical and organizational aspects of health care delivery in the system of care for patients with Arterial Hypertension. However, it was neither developed, nor implemented in isolation from the rest of the quality improvement process. The quality improvement process included:

- ◆ Planning the quality improvement project
- ◆ Designing the project set-up including the teams and participating facilities
- ◆ Training in quality assurance, development of team skills, and subject matter knowledge in Arterial Hypertension
- ◆ Development of an appropriate set of indicators to monitor the project
- ◆ Description of the current system of health care in Arterial Hypertension
- ◆ Clarifying existing practices in Arterial Hypertension
- ◆ Developing the updated clinical guideline
- ◆ Enhancing the capacity of the system of care to enable the implementation of the updated clinical guideline in Arterial Hypertension
- ◆ Testing the new system of care for improvement and making further changes as necessary
- ◆ Monitoring the indicators of quality throughout the improvement process

It is important to point out that the experience of the authors show that the development of clinical guidelines on its own does not necessarily lead to improved quality. It is the whole process of quality improvement that allows the guidelines to be developed as well as implemented and tested for improvement. The authors recommend that in applying the clinical guidelines, special attention be paid to issues of adaptation, communication, and implementation of clinical guidelines in order to increase the chances of their successful implementation in everyday practice.

This document describes the clinical guideline developed in Arterial Hypertension. The content of the clinical guideline has been developed from the best available evidence-based medicine at the time the work was conducted. It was also adapted to the organizational, technological, cultural and other factors relevant to the setting in Tula Oblast where it was developed. It includes both the clinical content and organizational aspects of health care delivery relevant to the setting in Tula Oblast. The clinical content and organizational aspects of health care delivery are integrated in the clinical guideline.

4.2. Goals for Guideline Development

In the structure of mortality, cardiovascular diseases are the major cause of mortality in Tula Oblast and in the Russian Federation and, above all, complications of Arterial Hypertension (AH), i.e. acute myocardial infarction (AMI), acute cerebral circulation failure (ACCF). AH is a common chronic condition treated by physicians. AH prevalence among the adult population of Tula Oblast is 27% (estimated value). However, less than 10% of the population are registered and know that they have AH.

Due to a number of social reasons, many patients with previously registered and treated AH do not get adequate medical care now and what is more important, do not promote a healthy lifestyle. Often those individuals do not even suspect that they have AH.

Tula Oblast is a leader in Russia in introducing the institution of General Practitioners in primary care. It is understood here that the General Practitioner is totally responsible for an assigned patient irrespectively whether the patient is as well as for registering and providing adequate medical and preventive care to the patient with AH.

The goal for the Guideline development is updating and improvement of organization and technology of medical care provision by GPs to patients with AH.

4.3. Guideline Development Methodology

A key requirement for the clinical guideline development, by the partners in the collaboration, was the use of evidence-based medicine as the basis for their development. Hence, references, articles, and other sources of information used in the development of the clinical guidelines were screened for the level of evidence supporting them. Content experts involved in the work were requested to pay special attention to this matter.

This issue was particularly relevant to the Russian health care system, which had been isolated from the world for many years. Therefore, the Health department of Russian Federation now pays much attention to the development of evidence-based medicine and establishes in the framework of intergovernmental cooperation Evidence-based medicine center in the Sechinov Moscow Medical Academy. Actually, future personnel of the center to be have already begun their work, i.e. they provided the developers with the evidence-based data in the course of this guideline development.

The basic model for the work was based on Paul Batalden's Framework for the Continual Improvement of Health Care [Paul B. Batalden, MD, Patricia K. Stoltz, PA-C, A Framework for the Continual Improvement Knowledge to Test Changes in Daily Work, Journal of the Joint Commission on Quality Improvement, October 1993]. This framework suggested the integration of subject matter knowledge with improvement knowledge as a powerful means of continual improvement in health care. The guidelines were also developed as an integral part of the quality improvement projects. The same principles, which applied to the work in the process improvement projects, were used in developing the clinical guidelines. These are systems approach, teamwork, customer focus, and scientific methodology. Based on this framework and the principles of quality management, Dr. Rashad Massoud of the QAP/URC-CHS developed the methodology for clinical guideline development used in this work. The key steps in this methodology consisted of the following:

1. Study the existing system of health care delivery

The organization of the system or process of care is reviewed by a team of professionals, involved in the given process of health care delivery. The members of the team should have between them all the necessary insight into this process of care. The team discusses their understanding of the process of care and by the end of this step, they draw a detailed flowchart or series of flowcharts.

2. At each step of the process of health care delivery, make explicit what, if any, clinical content is involved

The team goes through the process of health care delivery and at each relevant step in this process they make explicit what clinical content pertains to this step. The clinical content can be in many forms: clinical definitions, criteria for diagnoses, criteria for referral, various clinical decision making steps made explicit, treatment guidelines, etc. Most of these would be difficult to write down onto the flowchart simply for lack of space. It is suggested that this clinical content information be included as appendices which, can be linked to specific steps in the process. The links can be made through either by numbers and signs or by arranging the clinical content to follow the steps in the flowcharts. For those steps where the clinical information is not possible to agree on, either because it is not available or because different professionals use different criteria, it is important to make notes to this effect.

3. Review evidence-based literature on the subject matter of the clinical guideline

A literature review is made and evidence-based materials are prepared for a seminar at which the subject matter for the clinical guideline is reviewed. This material is then delivered at a seminar in which the subject matter is reviewed, starting with definitions and basic understandings all the way through to latest evidence-based materials on the subject matter. A team of high level experts in the subject matter, from the USA and Russia, led this part of the development of the clinical guideline. Quality Assurance experts provided support to the content experts regarding the process of clinical guideline development and linking the clinical and organizational aspects of the new system of care.

4. Update the clinical content in accordance with the evidence-based knowledge of the subject matter

The project team returns to the current systems and processes and reviews them in the light of the clinical update discussed at the seminar. The objective of this step is to decide on what clinical content needs to be changed or updated in order to make their new systems compatible with the state-of-the art in the given clinical care. The first decisions on what they need to change are the decisions pertaining to the clinical content. Changes in clinical content are discussed and reviewed in the light of their understanding of the reality of the health care system. This is perhaps the most difficult part of the work, as it entails changes in physicians' practices of clinical medicine. For this reason, including the key stakeholders on the team is essential. The team necessarily needs to include the professionals who will be responsible for ensuring that the changes in clinical practice will get implemented. Therefore the teams need to include the senior physicians, as well as general practitioners involved the everyday delivery of health care, and other clinical staff including nurses and midwives. The team decides on issues, which need to be changed in the current clinical practices. Relevant orders and instructions may be issued.

5. Introduce changes to the system of care in order to enhance the capacity of the system of care to enable the implementation of the updated content knowledge

As clinical changes are thought through, the organization of care is reviewed simultaneously, and changes in the organization of care are also considered. The objective of the exercise is to change the existing system so that the system will enable the implementation of the updated clinical content. This may seem straightforward on the surface. However, in reality, to what extent the team is able to decide on what can and cannot be changed in the system of health care delivery is a far more complex set of decisions. Back and forth discussions and negotiations between the members of the team and the leadership are required for this purpose. By the end of this stage, new flowcharts are developed with accompanying appendices describing the updated clinical content. Relevant instructions and orders may be issued.

6. Review the indicators to ensure that they reflect the changes in both subject matter knowledge and changes in the system of care

The clinical guidelines, as well as other components of the work, are implemented as an integral part of the process improvement. One such part is the development of indicators of quality. These are a set of measurements, which allow us to monitor the progress of the improvement project at the process, outputs, and outcomes level. The indicators are set up prior to the development of the updated clinical guidelines. However, once the new clinical guideline and system of care are decided on, the indicators need to be reviewed so that they reflect important changes in the new system of care and its clinical content.

4.4 Scope of application and purpose of the guideline

4.4.1. Clinical Description of the Guideline

Agreed definitions of AH

AH is primarily determined by an increase in arterial blood pressure over some conditional value. Elevated blood pressure diagnosed as AH is a systolic arterial pressure (SAP) equal or over 140 mmHg and/or diastolic arterial pressure (DAP) equal or over 90 mmHg. The choice of these levels of AH is based on clinical epidemiological research, which proved that the risk of development of AH complications is 2 times higher for individuals with DBP of over 90 mmHg in comparison with people whose DBP is lower than 80 mmHg. Another form, systolic AH of the elderly, is also singled out because it has been proven that levels of SBP are correlated with the risk of development of cardiovascular complications.

AH level though significant, is not sufficient index for the assessment of AH severity level. The following is considered in order to classify AH:

1. AH level
2. Evidence of damage to target-organs

The etiology during primary care provision to patients with AH in accordance with the guideline is not that important since AH treatment is not etiological but pathogenic.

Since the risk of cardiovascular complications is steadily increasing with AH increase, it is reflected in the generally accepted terms “mild,” “moderate” and “severe” AH, which were used in the WHO Expert Committee report (1996) and were adopted in the majority of European countries.

It should be emphasized that these terms, especially “mild” hypertension, describe only the level of AH but not the degree of severity of patient’s condition.

In managing hypertension it is important to know the relative distribution of different levels of diastolic BP. According to research conducted in home conditions in the framework of a large-scale research “Program of Detection and Management of AH” (158,906 participants aged from 30 until 60 years of age), it was found that among individuals with elevated arterial blood pressure about 70% had diastolic BP in the range 90-99 mmHg, 20% in the range 100-109 mmHg, and 10% DBP was over 110 mmHg.

Thus, almost 90% of patients with AH belong to mild and moderate AH group. It is in this numerous group, where the majority of cases of abnormality of cerebral blood circulation and other complications develop. Because of that, medical and preventive activities among patients with relatively low level of AH show greatest clinical and economic results.

Early detection and treatment of AH allows preventing and delaying the development of organ damage, which, in its turn, considerably determines the prognosis of disease development. Associations between arterial blood pressure level, duration of AH, and organ damage are not constant. High levels of arterial blood pressure may be registered in the absence of organ damage. At the same time, among other individuals they are present despite low levels of arterial blood pressure. At the present time, there is no doubt that the evidence of organ damage increases the risk of development of cardiovascular complications at any level of arterial blood pressure.

Classification of AH according to the level of arterial blood pressure and damage to target-organs (WHO, World Hypertension Association, 1999)

There are 3 groups according to level of BP and damage to target-organs:

Table 4.1. AH classification according to BP level and damage to target-organs

Severity	Systolic blood pressure	Diastolic blood pressure
1. Mild	140-159 mmHg	90-99 mmHg
2. Moderate	160-179 mmHg	100-109 mmHg
3. Severe	>180 mmHg	>110 mmHg
4. Isolated systolic hypertension	>140 mmHg	<90 mmHg

Primarily damage to:

1. Heart
 - History of stenocardia
 - History of acute myocardial infarction
2. Cerebral vessels:
 - hypertensive encephalopathy
 - history of stroke
3. Renal injury
4. Presence of endocrine disorders

Stages of AH (in accordance with severity of target-organ damage)

Term “**stages of disease**” is used to determine the **severity** of organ damage. It reflects progressing of the disease.

Stage I

There is no manifestation of heart, renal, cerebral damage, and normal eyegrounds.

Stage II

Manifestation of at least one of the following organ damage:

- ◆ Hypertrophy of left ventricle, confirmed by echocardiography
- ◆ General or local narrowing of retina arteries
- ◆ Proteinuria and/or moderate increase in concentration of blood creatinine (1.2-2.0 mg/100 ml);
- ◆ Ultrasound or angiographic sings of atherosclerotic vessel damage (carotid artery, aorta, ileocolic and iliolumbar arteries, and femoral artery).

Stage III

Symptoms and clinical sins of damage to target-organs

1. Heart:
 - ◆ stenocardia
 - ◆ myocardial infarction

◆ cardiac insufficiency

2. Brain:

◆ insult

◆ temporary abnormality of cerebral circulation (transient ischaemic attack, TIA)

◆ hypertensive encephalopathy

◆ vessel dementia

3. Kidneys:

◆ concentration of plasma creatinine over 2 mg/100 ml

◆ renal insufficiency

4. Vessels:

◆ dissecting aneurysm of aorta

◆ clinical signs of occlusive damage to peripheral arteries

5. Eyegrounds:

◆ hemorrhage or exudation with edema of ocular nerve disk or without it.

Prophylactics and non-medication treatment of AH

Reduction of influence of factors caused by patient's lifestyle is the backbone of AH prophylactics, effective means of reduction of AH, and prevention of complications. GP's role is extremely important in persuading the patient in the necessity of following relatively simple recommendations. A part of this clinical guideline is a Program of Health Promotion for patients with AH. The following sections are included in the program: basic information on AH, psychological aspects of AH, persuasion and principles of non-medication treatment of AH, recommendations on following a healthy lifestyle and cultivation of motivations towards a healthy life style.

AH Screening

Early detection and treatment of AH allows preventing and delaying the development of organ damage, which, in its turn, considerably determines the prognosis of disease development. Screening is an effective method of early AH detection.

Screening is a purposeful examination in order to achieve a set goal. AH screening is the detection of individuals with AH during examination of a considerable population flow.

Screening Objectives are to detect and register individuals with SBP over 140 mmHg and/or diastolic BP over 90 mmHg. Such pressures must have been registered not less than 3 times within 2 months.

Information Support for AH Screening

Informational support means a process of informing the community on the existing problem and methods used at medical institutions to screen for it. The following forms have been used in informing the community on screening for AH:

◆ Local and national media

-
- ◆ Leaflets and announcements at GP's offices, polyclinics, homes, public places (shops, clubs, cinemas, banks, post offices, etc.)
 - ◆ Discussions and lectures at medical institutions and enterprises.
 - ◆ Public self-government committees (local self-government institutions of municipal agencies)
 - ◆ Conversations with visiting patients, friends, relatives, etc. about the necessity of early AH detection and existing methods of AH detection

Examination

Patients with elevated blood pressure are detected by means of screening, which is the first stage in diagnosing AH. For detected individuals with AH the next stage of the diagnosis is considered. At the same time treatment is started. The assessment of damage to target organs and risk factors is conducted depending on the level of AH and damage to target organs, the following order of examination is recommended:

Treatment of AH

The primary goal for AH treatment is reduction of development of associated morbidity and mortality. It has been shown that the risk of insult and ischemic heart disease reduces with reduction of diastolic as well as systolic BP. Because of that, AH treatment should be aimed at the reduction of BP at a pace endurable for the patient and at its further maintenance at normal levels.

The mandatory requirement is involving the patient into the Health Promotion Program, which will provide him/her with knowledge on lifestyle change and non-medicinal methods of treatment of AH.

The major groups of medications are those, which do not damage carbohydrate, lipid, purin metabolism, not retain fluids in the body, and do not suppress the central nervous system. These medications include: diuretics, b-adrenoblockers, Calcium antagonists, ACE inhibitors, inhibitors of Angiotonin converting enzymes receptor blockers, a-adrenoblockers

Treatment strategy of a patient with AH is based on placing the patient to an appropriate risk group of development of AH complications. Individual treatment plan is chosen in accordance with concomitant conditions and diseases.

In making the choice of treatment, several criteria need to be looked at including the diastolic blood pressure and risk factors for that patient. The first choice medications are diuretics and b-adrenoblockers. If there are contraindications or if there are concomitant conditions, medications from other groups are chosen.

4.4.2. Target Groups

This guideline is used for patients with AH of different degrees of severity.

4.4.3. Guideline Users

The guideline is created for General Practitioners, nurses and health care managers.

4.4.4. Expected Results from Guideline Implementation

- ◆ Creation of a standardized approach in the area for the management of AH.
- ◆ Increase in detection of individuals with AH at an early stage of disease development.
- ◆ Improvement in prevention activities and reduction in total number of individuals with AH.
- ◆ Increase in number of individuals with AH on the GP Card Index.
- ◆ Decrease in the number of complications from AH.
- ◆ Improvement in quality of medical care provided by General Practitioners to patients with AH.
- ◆ Improvement of effectiveness of treatment of AH.
- ◆ Creation of a unified information system in the process of health care provision to patients with AH.
- ◆ Creation of unified understanding of the essence of medical care quality among all medical personnel.

4.5. Structure and Principles of Guideline Development and Implementation

The first three sections of the guideline represent lists of the guideline developers, acronyms, and major definitions. This section gives a brief description of the subject matter of the guideline and describes the process of its development. After this section is introduced, it should be clear why and for whom the guideline is developed. The document is a starting point for health care managers to make decisions on changing the system of medical care provided by general practitioners.

Section 5 describes all stages of medical care delivery and gives general impression on health care management at all stages and their interaction. Section 6 describes each stage in detail. The structure of its subsections is the same.

5. The Entire Process of Health Care Delivery Described in the Guideline

5.1. Algorithm of Process

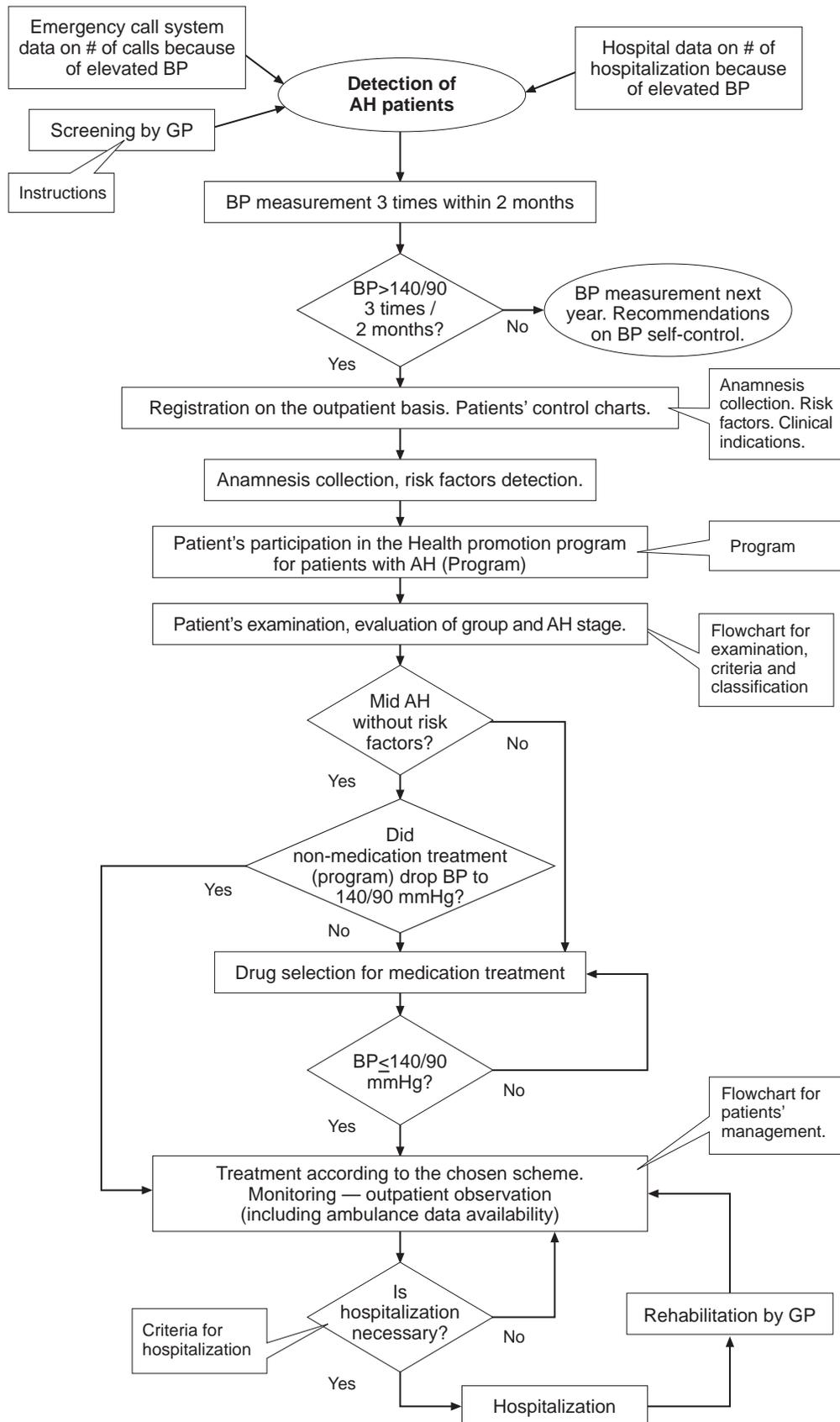
This guideline is devoted to the description of medical care provided by General Practitioners to patients with AH. The guideline covers the whole process of health care provision to patients with AH, AH diagnostics (determination of degree of AH severity), treatment (medications), and AH prophylactics. The entire algorithm of health care delivery for patients with AH is presented on algorithm 5.1.

5.2. Description of Process

Thus, the guideline covers the following stages of medical care provision to patients with AH:

1. Detection of individuals with AH (screening)
2. Registration of individuals with AH on an outpatient basis
3. Diagnostic examination of different groups of patients with AH (depending on the degree of AH severity and concomitant conditions, etc.)

Fig. 5.1 General flowchart for GP assistance to patients with AH



-
4. Treatment of patients with AH (medicinal and non-medicinal)
 5. Outpatient management and monitoring of patients with AH
 6. AH prevention

Clause 6 will further elaborated on all these stages.

5.3. Provision of Health Care Delivery

5.3.1. Personnel

Personnel includes General Practitioners and nurses. Due to the guidelines implementation some specification of job description underwent some changes:

- ◆ Take all detected patients under observation by filling in Control Charts
- ◆ Create Chart Index
- ◆ Implement the developed guidelines
- ◆ Collect and analyze data on AH treatment at different medical institutions
- ◆ Analyze quality of care using the developed indicators

Changes in the nurse job description:

- ◆ Observe BP measurement techniques
- ◆ Assist GP in filling in Control Charts and Index management

5.3.2. Medications

Medications used for medical care delivery in accordance with the guideline. Most important medication groups are b-adrenoblockers, diuretics, Calcium antagonists, ACE inhibitors, a - adrenoblockers

List of medication groups

1. Diuretics
2. b-adrenoblockers
3. Calcium antagonists
4. ACE inhibitors
5. Inhibitors of Angiotonin converting enzyme
6. a - adrenoblockers
7. Selective stimulators for imidozalin receptors
8. Medications acting on the central nervous system
9. Medications affecting peripheral and sympathetic nervous endings

5.3.3. Equipment

Tonometer, electrocardiograph, ultrasound scanner, laboratory work equipment, ophthalmoscope.

6. Management of AH

Criteria for diagnosis of patients with AH

AH is an increase of blood pressure over 140/90 mmHg when measured at least three times within two months. AH patients identified in accordance with this criterion are then managed according to this guideline

6.1. Screening for AH

6.1.1. Objectives of Screening and Expected Results

The GP and his/her medical nurse should conduct screening of their assigned population in order **to identify** individuals with AH. Within 11 months (from July 1, 1999 until June 1, 2000) irrespective of the reasons of each patient visit the BP will be measured. In June (the least busy month of the year) individuals who are assigned to the practice but have not attended it at least once (and as a result have not had blood pressure checked) are selected. The GP and a nurse should visit or send for such patients and check their blood pressure.

Informational support of screening will be provided during the whole year in order to inform the population of the importance of blood pressure measurement at least once a year.

If the screening protocol is executed, the overwhelming majority of individuals with AH among the assigned community will **be registered** by the end of the year and will be provided with appropriate medical care. At the same time, when using this method we need to consider possible overload of physicians and nurses. People whose elevated BP is registered in emergency room, in hospital, and in medical records abstracts are to go under screening.

6.1.2. Screening Resources

According to a directive from the Ministry of Health of the Russian Federation, there should be a general practitioner and two nurses on the staff of a general practice. The general practice should have two up-to-date tonometers of adequate accuracy, which should be periodically calibrated. Visits in order to measure blood pressure should be taken into account when estimating physicians and nurses' working load.

Methods of Blood Pressure Measurement

- ◆ BP measurement is conducted while a patient has been comfortably sitting in a chair for at least 5 minutes and leaned back in the chair with his/her hands at the heart level.
- ◆ Patient stops smoking and drinking coffee 30 minutes before BP is measured.
- ◆ The size of the cuff should fit patient's arm size: it should not be too tight or loose. A cuff that is too small will make the BP artificially elevated.
- ◆ The cuff should be put on the right arm 20cm above the elbow. (if there is no contra-indications such as thoracic surgery or coronary bypass surgery, etc.).
- ◆ The cuff should be filled up to the point when pulse disappears (30 mmHg).
- ◆ Pressure in the cuff should not fall faster than 2mmHg/sec.
- ◆ The cone-shaped part of the stethoscope should be used for auscultation.
- ◆ If possible, phase V of Korotkov's tone (disappearing) and but not phase IV (muffling) should be recorded.

-
- ◆ 2 measurements separated by a 2-minute interval should be taken.
 - ◆ BP measurements should be performed at the same time according to BP changes during the day.
 - ◆ If patient is taking some drugs, last intake should be registered.
 - ◆ Diastolic pressure is registered as well as systolic pressure.

6.1.3. Algorithm of Screening

Algorithm of screening is presented on flowchart 6.1.

6.1.4. Duties of General Practitioner and Medical Nurse to Detect and Register Patients with AH:

- ◆ It is obligatory to measure patient's blood pressure irrespective of the visit cause (at the clinic or home). If patient's blood pressure is over 140/90 mmHg, it should be measured at least 2 times within 2 months.
- ◆ It is obligatory to periodically (preferably every day or once a week if communications are bad) receive information from the hospital on discharged patients and from the emergency room on calls from patients with hypertensive crises or blood pressure over 140/90 mmHg. It is also desirable to measure blood pressure of such patients at least 2 times within 2 months.
- ◆ To observe blood pressure measurement technique provided in the instruction.
- ◆ To put under medical observation all patients whose blood pressure was over 140/90 mmHg within 2 months. It should be done by filling in patient records (see attachment 1) and paying attention to patients with AH of the first degree.
- ◆ A list of patient records should be created in the office, which should be to follow up on patients with AH.

6.2. Outpatient Management

6.2.1. Objective and Expected Results of the Stage

The objective of this stage is registration of detected individuals with AH and provision of their regular observation (examination) in future. The result of this stage is the control charts which should include the following information: history taking, determination of risk factors, clinical signs and complaints.

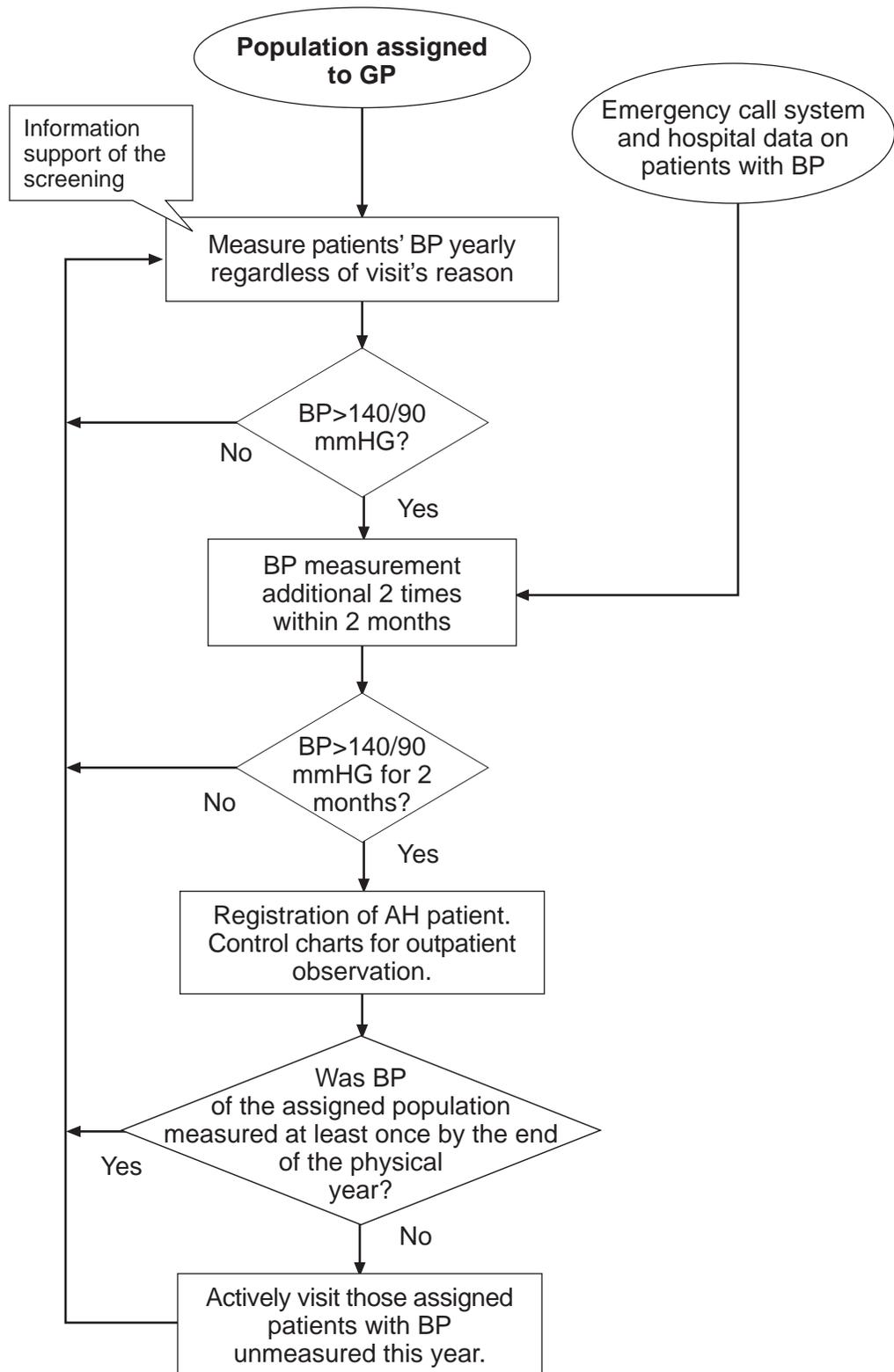
6.2.2. Requirements for Keeping Control Charts and Card Index

Control Chart of an Individual with AH

A special control chart was created in order to register and observe individuals with AH on the outpatient basis (see attachment 1).

The control chart is a new important element in the system of medical observation of patients with AH. It contributes to high-quality work of GPs on examination, treatment and outpatient observation. It also improves patients' management, includes the most important data on the patient and GP, and allows measuring the quality of medical care in accordance with determined indicators. The control chart may serve as an instrument for computerization of documentation on AH, which is the most desirable way for improvement of GPs' work.

Fig. 6.1 Flowchart for screening



Functions of control chart of patients with AH:

1. Contribute to high-quality work of GPs on testing, treatment, and patient management.
2. Provide outpatient registration of patients.
3. Provide the most important data on the patient and GP's work with the objective to assess quality of care in accordance with established standards.
4. The control chart may serve as an instrument for computerization of documentation on AH, which is the most desirable way for improvement of GPs' work.

The control chart is filled out for each patient diagnosed with AH. The card index is located in GP's office, which allows one to efficiently enter data and observe the treatment. Control charts are analyzed quarterly with the objective to measure and improve quality of care in accordance with the determined indicators.

In the course of working with control charts the improvement of their content as well as the form is inevitable.

6.3. Health Promotion Program for Patients with AH

6.3.1. Objectives and Expected Outcomes

Health Promotion Program for patients with AH has been developed with the objective to improve patients' lifestyle by teaching them non-medication methods of AH treatment. It is expected that patients with AH will give up bad habits and change to a healthy lifestyle, which will include exercising and use of "autotraining" to decrease BP below 140/90 mmHg without medication, if possible.

6.3.2. Resources for Health Promotion Program for Patients with AH

Visual aids and patients' individual journals are necessary. It is also important to take stock of working hours for GPs and nurses especially if they conduct classes during their free time.

There have been developed two variants of the Health Promotion Program. Some classes are conducted by GPs (1 hour, see table 6.1.). Some are conducted by the specialists of the Oblast Center for Medical Prophylaxis (22 hours, see table 6.2.). Study materials, which may be used by GPs and specialists from the Oblast Center for Medical Prophylaxis, are also available and may be used for lecture.

Table 6.1. List of class topics for patients with AH under the Health Promotion Program.

Class topics	
1	What is arterial hypertension? AH complications, i.e. insult, infraction, crisis
2	BP measurement technique
3	Home prevention and assistance at hepertonic crisis. In what situation a doctor must be sent for?
4	What causes elevated BP and how to avoid it? Non-medication treatment and preventive measures

Health Promotion Program Realized at General Practitioner's Office

Materials adopted for patients with AH

1. What is Arterial hypertension? AH complications, i.e. insult, infraction, crisis

Blood pressure is the force created as the heart pumps blood into the blood vessels. When the blood vessels are narrowed, the heart must work harder. This makes the blood pressure go up.

Hypertension – an elevated blood pressure, i.e. 140/90 or higher (the average blood pressure for a healthy adult is about 120/80). The first number is called the systolic pressure. This number represents the amount of pressure in the arteries when blood is pumped into them each time the heart beats. The second number – **the diastolic pressure** – shows the amount of pressure in the arteries when the heart rests between beats.

Arterial hypertension is the most common and dangerous cardiovascular disease due to a high risk of insult and infraction development. One in every three adult in our Oblast is hypertensive.

Since arterial hypertension usually gives no warning signals not all people with high blood pressure are aware of their condition. This disease used to be called a “silent killer”, 30-40% of the toll mortality rate is due to AH consequences and complications.

2. BP measurement.

BP is measured with the help of tonometer.

BP is measured in a sitting posture after a 5 minutes of rest.

It is necessary to measure BP on the both arms. Patient's arm with a cuff placed around it should be positioned at the heart level. After having pumped up the cuff, gradually let the air out and listen for the first sound of blood pulsing back through the artery to register systolic BP. When all the air is released from the cuff and all the pumping sounds stop, register diastolic BP.

Pulse rate may also detect elevated BP.

Pulse is generally measured at the radial artery. Patient's arm should be freely positioned so that muscle and tendon tension does not affect pulse measurement.

Normal pulse rate ranges from 60 to 80 beats per minute.

High pulse rate often accompanies hypertonic crisis and requires medication treatment. Low pulse rate (<60 beats per minute) is a contraindication for b-blockers use (Anaprilin, Obsidan, Atenolol)

Patient's BP and pulse should be measured on a regular basis

Sharp increase in BP may result in insult or myocardial infraction

3. Home prevention and assistance at hepertensive crisis.

Hypertensive crisis is an AH worsening condition with sudden or gradual complication of the person's health status, i.e. dizziness, worse headaches accompanied by nausea and vomiting that does not bring any relief. Uncontrolled crisis may give way to insult or infraction.

Immediately measure BP and if it is high, ensure nonstress environment at home, put the patient in bed and provide for a hot footbath, give the patient 1 tablet of Klofelin and 1 tablet of Korinfar (Kordafen, Nifedipine)

If BP remains high (does not go down) in 30 minutes – repeat the treatment, but if it remains unchanged in another 30 minutes – call the ambulance.

4. What causes elevated BP? Non-medication treatment and preventive measures

Smoking, excessive alcohol consumption, sedentary lifestyle (hypodinamia), excessive salt consumption, overweight, inability to rationally manage difficult and stressful situations provoke elevated BP.

Non-medication treatment

- ◆ Follow a regular exercise program designed according to your doctor's recommendations
- ◆ Trim down if you are overweight sticking to a special diet that reduces blood cholesterol level
- ◆ Restrict salt consumption to not more than 5 g per day
- ◆ Quit smoking
- ◆ Learn to avoid stressful situations or manage them with minor health losses

Table 6.2. List of classes for Patients with AH under the Health Promotion Program at the Center for Prophylaxis

Class #	Titles of Sections and Topics	Number of Classes (According to Class Types)			
		Theoretical Classes	Practical Classes	Individual Classes	Seminars
I. Life Style and Health					
1	Goals and Objectives of School for Patients with AH under HPP. Healthy Life Style, Methods of Health Assessment	1			
2	Arterial blood pressure		1		
II. Basic Information On Arterial Hypertension					
3	BP and pulse measurement		1		
4	Motion regime for individuals with AH	1	1		
5	Therapeutic exercises for individuals with AH	1	1		
6	Medication treatment rules. Primary care for individuals with hypertonic crisis	2		1	
III. Basic information on Non-Medication Treatment of AH					
7	Reflexotherapy, self-massage	1	1		
8	Non-traditional approaches to AH treatment	1	1		
9	Psychological reasons for AH development	1	1		
10	Autotraining		2		
11	Game "Can you live a healthy life?"		2		
12	Round table "Arterial Hypertension"				2
Total:		8	11	1	2
Total: 22 hours					

6.3.3. Program Algorithm

When a patient is registered on the outpatient basis the GP agrees with the patient on a convenient place and time for him/her to attend the Health promotion program. The group should not exceed 6-8 people. Group members should be of approximately the same age, sex, occupation, etc. Time of classes should be convenient for all group members. Sometimes classes may be conducted in the evening or on weekend. The GP may conduct classes together with his/her nurse. If general practices are located at a polyclinic the GPs may divide the classes between themselves. It is recommended to conduct classes in the evening (5-6 p.m.).

Variant 2: Classes may be conducted at the Oblast Center for Prophylaxis. The program consists of 12 classes (24 hours in total). Classes should be conducted at least twice a week (Tuesday and Thursday). It is recommended to start classes at 6 p.m. As the program cannot cover all the patients with AH at the Oblast Center for Prophylaxis the major workload will fall on GPs.

While the patient is under examination and his/her health status allows the patient to attend classes it may be his/her only treatment. If patient's BP reduces to 140/90 mmHg and remains stable, selection and medication treatment may become unnecessary. However, the patient should be observed on the outpatient basis for the rest of his/her life.

6.3.4. Criterion for Starting Medication Treatment

Criterion for starting medication treatment is that BP is not decreased to the level of 140/90 mmHg and/or the absence of stability.

6.4. Diagnostic Examination

6.4.1. Objectives and Expected Result of the Stage

The objective of the examination is to determine the group and stage of condition. **Expected result** is to give a diagnosis in accordance with the classification given in point 4.4.1. "Clinical Description of the Guideline."

6.4.2. Equipment

Equipment will include a device to measure BP, electrocardiograph, ultrasound scanner, and laboratory work equipment, ophthalmoscope. It is necessary that all kinds of examination stated below be available for patients at convenient time.

6.4.3. Algorithm of Diagnostic Examination

Diagnostic examination is indicated when the patient is registered for outpatient observation. The volume of the examination should be strictly in line with the scheme given below. Research has shown that prescription of more examinations than described in the scheme leads to waste of resources and does not produce the best results. Examinations and selection of medications may be conducted simultaneously if it is required by patient's condition. It is an important distinction from the old methods treatment was not chosen until examinations were completed (preferably at hospital).

Volume of necessary examinations and tests for different groups of patients with AH.

Group I: Mild AH (Including borderline AH)

- ◆ Urinalysis
- ◆ ECG

Group II: Moderate and Severe AH:

- ◆ Urinalysis
- ◆ ECG
- ◆ Eyegrounds examination
- ◆ Blood lipids
- ◆ Blood glucose
- ◆ Echocardiogram

Indicated examinations:

if urinalysis is abnormal

- renal ultrasound
- creatinine, blood urea

if pathology of adrenal gland is suspected (severe AH):

- ultrasound and computer tomography of the adrenal glands
- blood electrolytes

if there is a suspicion regarding renovascular hypertension (severe AH):

- aortography

6.5. Treatment

6.5.1. Objectives and Expected Results of the Stage

The major objective for this stage is the reduction of BP to the level below 140/90 mmHg at a pace endurable for the patient and further maintenance of BP at the normal level. The expected result is stable normal BP levels.

6.5.2. Human, Equipment and Medication Resources

It should be kept in mind that when GP and his/her nurse work strictly in accordance with the guideline the number of patient visits will considerably increase. As a result, the personnel will spend more time on measuring AH.

The equipment will include devices to measure patients' height and weight as well as tuned tonometers for the GP and the nurse.

Medications for BP reduction and maintenance of normal BP levels are also included. They are the following groups of medications: b-adrenoblockers, diuretics, Calcium antagonists, ACE inhibitors, and a-adrenoblockers.

6.5.3. Treatment Algorithm

Stages of Treatment of Patients with AH

When choosing a course of treatment, the GP starts with one medication in the minimal dose. Then the patient is observed. Depending on the group of the selected medication, treatment effect may become apparent at once in the first 24 hours of treatment or within a definite period of time. During this time, it is necessary to periodically measure blood pressure level. Blood pressure measuring may be conducted in the GP's office as well as by the patient. Blood pressure readings should be registered in the control chart. In that way the treatment effect of the medication or its ineffectiveness are assessed. If there is no treatment effect, the effect is insignificant or there are severe side effects the medication should be canceled. If there is a positive effect, it is necessary to choose the dosage which will ensure the necessary result. A second medication should be added if the required level of BP is not achieved. Table 6.3. indicates the priority order, in which medications are included in this algorithm.

Table 6.3. General course of medication selection

	β -blockers	Diuretics	Ca antagonists	Inhibitors of Angiotonin converting enzyme	α -blockers
I stage					
No additional factors and concomitant diseases*		2		1 1	
	1	2			
β - blockers contraindications		2	1		
		2		1	
		2			1
If insufficient/not effective/side effects					
II stage					
Reversed priority order	1	2			
		2	1		
		2		1	
			1	2	
		1			2
		1		2	
III stage					
	1	4	3	2	
	1	2	4	3	
	2	1	4		3
	1	2		3	4

Treatment of AH is considerably complicated by concomitant conditions. In this case the task of choosing a treatment scheme becomes considerably tougher. Under this algorithm order of insertion of medications depends on the AH severity and concomitant diseases. Variants of treatment schemes are given in table 6.4.

**It is possible to start with 25-50 mg of Atenolol and 25 mg of Hypothiazid. In case of insufficiency, Atenolol dose shall be increased up to maximum (200g) in 7-8 days. Further increase in diuretics' dose gives no effect.*

Side effects usually become apparent some time after the treatment effect. If there are side effects it is necessary to evaluate the correlation between the positive treatment effect and side effects of the medication. If side effects are not considerable it is possible to continue using the medication (usually in decreased dosage). If side effects are severe the decision to cancel the medication is made. In this case cancellation of taking the medication should be done gradually in order to avoid sharp increase of BP.

Table 6.4 Algorithm of Treatment of AH Depending on the Presence of Concomitant Diseases

Concomitant Diseases	β-blockers	Diuretics	Calcium antagonists		ACE inhibitors	α-blockers
			DHP ¹	OCB ²		
Coronary artery disease	1			3	2	
Sinus bradycardia		1	2		3	
Atrial fibrillation	1			2	3	
Atrial fibrillation with WPW syndrome	1	3			2	
Tachybrady syndrome		1	2		3	
• -V blockade		1			2	
Cardiac insufficiency, Dysfunction of left ventricle	2	3			1	
Hypertrophy of left ventricle	2		3	4	1	
Hypertrophy of left ventricle with congenital diastolic dysfunction	1		3	2	4	
Damage of mitral valves, mitral stenosis	1				2	
Mitral and aortic insufficiency			2		1	
Prolapsed mitral valve	1					
Disorders of peripheral arteries			2		1	
Pulmonary hypertension		2	1			
Hypertrophic cardiomyopathy	1			2**		
Chronic nonspecific lungs diseases			1		2	
Gout	Any except diuretics					
Liver disorders	Any except Dopegit					

continued

Table 6.4 continued

Concomitant Diseases	b-blockers	Diuretics	Calcium antagonists		ACE inhibitors	a-blockers
			DHP ¹	OCB ²		
Diabetes mellitus			2		1	3
Prostate gland adenoma						1
Osteoporosis		1				
Pregnancy	1		3			2
Old age		2	3		1	4
Young age	1	3			2	
Smoking		3			4	2

* Figures in the table indicate the order, in which medications are prescribed in accordance with their importance for each individual patient.

** Verapamil

1. DHP – Dihydropyridines (nifedipine, amlodapine)
2. OCB – Other calcium blockers (diltiazem, verapamil)

Table 6.5. Algorithm of Use of Major Hypotensive Medications

Diuretics			
Major Indications	Side Effects	Contra-Indications.	
		Absolute	Relative
<ol style="list-style-type: none"> 1. Old age 2. Excessive salt consumption 3. Obesity 4. Bradycardia 5. Renal insufficiency 6. Cardiac insufficiency 7. Inexpensive therapy 	<ol style="list-style-type: none"> 1. Do not reduce general peripheral vessel resistance 2. Negatively affect lipid and purin metabolism 3. Diabetogenic effect 4. Increase hypertrophy of left ventricle 	<ol style="list-style-type: none"> 1. Hyperlipemia 2. Gout 	<ol style="list-style-type: none"> Diabetes mellitus

Scheme of treatment

Hypothiazid: initial dose: 25-50 mg; if not effective, 2nd medication is added on week 3-4.

Brinaldix: 10-20 mg daily, maximum up to 60 mg. Maximum effect on day 3-8.

Arifon: 1.25-2.5 mg initial dose, maximal dose 5 mg. Effective after 1-2 weeks of treatment. If not effective, in 2 weeks b-blocker, ACE inhibitor, methyl dopa are added.

Furosemid: to stop hypertonic crisis; renal insufficiency with edematic syndrome up to 240 mg daily.

β-adrenoblockers			
Major Indications	Side Effects	Contra-Indications.	
		Absolute	Relative
1) Ischemic heart disease 2) Sinus tachycardia 3) Young age 4) Absence of obesity 5) Pregnancy induced hypertension 6) Signs of left ventricle hypertrophy with diastolic dysfunction.	1) Development of bradycardia and A-V block 2) Bronchoobstruction 3) Lipid metabolism is negatively affected. Oppression of insulin production or deepening of hypoglycemia as a result of insulin treatment 4) Depression syndrome	1) Bronchospastic conditions 2) Depression 3) Bradycardia and A-V block 4) Cardiac insufficiency	1) Diabetes mellitus 2) Atherosclerosis of lower extremities 3) Renal insufficiency

Scheme of treatment:

Cardioselective are preferable

Atenolol (tenormin, atenobene) 50 and 100 mg in tablets. Daily intake 25-400 mg 1-2 times daily.

Metoprolol 50 and 100 mg in tablets, daily dose 100-400 mg 2-3 times daily

Betaxolol (Lokren) in tablets 20 mg 10-20 mg once a day.

Noncardioselective

Anaprilin 10 and 40 mg in tablets (Odsidan, Propranolol) from 80 mg to 480 mg daily – reduction of insulin production and worsening of hypoglycemia against a background of insulin treatment. Depression syndrome: dose increase by 20 mg every 3-5 days.

Transikor: 20 mg in tablets, 40-240 mg daily

Nadolol (Cor Guard): 40-80 mg in tablets 40-240 mg daily (average daily dose is 120mg)

If not effective, in 2 weeks add diuretics and a-blockers. If there are side effects, change medication class (ACE inhibitors, Ca antagonists, diuretics)

Calcium antagonists			
Major Indications	Side Effects	Contra-Indications.	
		Absolute	Relative
ischemic heart disease necessity to quickly reduce BP Rein syndrome diabetes mellitus bronchial asthma old age	sinus tachycardia phlebectasia and feet edema gynecomastia headache negative inotropic effect	Tachycardia Varicose veins of lower extremities	

Table 6.5 continued on next page

Scheme of treatment:

Ca Antagonists of First Generation

Nifedipine: 10 and 20 mg in tablets, initial dose is 10-20 mg 3 times a day(120 mg), maximal dose- 40 mg

Verapamil: 40-80 mg in tablets, daily intake- 160-480 mg; leading to pulsus rarus, negative inotropic effect

Diltiazem 30, 60, 90, 120 mg in tablets, daily dose:120-360 mg 1-2 times a day.

Major advantages of Ca Antagonists of Second Generation are prolongation of action and gradual development of hypotension effect.

Isradipine (Lomir) 2.5 and 5 mg in capsules. 2.5 mg twice a day, in 2-4 weeks dose is increased up to 5 mg twice a day. Maximal dose: 20 mg, optimal: 10 mg.

Amlodipine (Norvasc) 2.5, 5, 10 mg in tables. 5 mg once a day, in 7-14 days dose may be increased up to 10 mg.

All medications are recommended to take before meals

Ferment Inhibitors, Inhibitors of Angiotonin Converting Enzyme) Inhibitors of Angiotensin receptors II			
Major Indications	Side Effects	Contra-Indications.	
		Absolute	Relative
1) Diabetes mellitus 2) Improve left ventricle diastolic function and reduce its hypertrophy. 3) Cardiac insufficiency 4) Rein syndrome 5) Chronic renal insufficiency	Impairment to kidney functions Hyperkalemia Cough	Edematic feet and mucus	Broncho-obstructive syndrome Renal insufficiency

Scheme of treatment:

Captopril: 12.5, 25, 50 mg in tablets. Initial dose: 6.25-12.5 mg. Daily dose: from 75 to 450 mg, 3 times a day. Effectiveness is higher if combined with diuretics.

Enalapril: 2.5, 5, 10, 20 mg in tablets. Daily dose: 5-40 mg 1-2 times.

Minizinopril: 10-40 mg daily. Dose should not exceed 2.5 mg if for patients with chronic renal insufficiency.

Perindopril (Prestarium): 2 and 4 mg in tables, 2-8 mg once a day.

Scheme of treatment

Lozartan: (Kozar)50 and 100 mg in tables. Initial dose: 25-50 mg once a day. Further increase up to 50 mg twice a day. Preferable to be combined with Hypothiazid.

Valsartan (Diovan) 80 and 160 mg in tablets. Initial dose: 80 mg per day. If there is no effect, dose shall be increased up to 160 mg per day..

α-adrenoblockers			
Major Indications	Side Effects	Contra-Indications.	
		Absolute	Relative
1) Adenoma of prostate gland (Benign Prostatic Hypertrophy) 2) Old age 3) Concomitant gout 4) Diabetes mellitus 5) Chronic renal insufficiency		1) Renal disorders 2) Pregnancy	

Scheme of treatment:

Prazosin (Adversuten, Minipress): 1, 2, 5 mg in capsules. Initial dose 1 mg twice a day, dose is further gradually increased up to 6-10 mg daily.

Doxazosin (Cardura): 1, 2, 4, 8 mg in tables once a day. Average daily dose: 4-6 mg. If not effective, may be combined with b-blockers and diuretics.

Selective stimulators for imidozalin receptors for mild hypertension			
Major Indications	Side Effects	Contra-Indications.	
		Absolute	Relative
1) Lipid metabolism abnormality, obesity 2) Diabetes mellitus 3) Ischemic heart disease 4) Bronchial asthma	Not studied	1) Sinus node weakness syndrome 2) A-V blockade 3) Bradicardia 4) Unstable stenocardia 5) Cardiac insufficiency, 3d stage 6) Chronic renal insufficiency	

Scheme of treatment:

Initial dosage of 200 mg/day; once in the morning, maximum dosage 600 mg in two doses.

Table 6.5 continued on next page

To prevent crisis

Medications acting on the central nervous system			
1. Klonedin (Klofelin, Gemiton, Katapreson)			
Major Indications	Side Effects	Contra-Indications.	
		Absolute	Relative
Hypertonic crises Choice of inexpensive treatment	1) Depression 2) Reduced potency	Pronounced arterio-sclerosis of brain vessels Depression Occupations requiring quick reaction	

Scheme of treatment:

Initial dose: 0.15 mg a day; increase in dose every 2-3 days.

Average daily dose: 0.3-0.45 mg.

Combined with diuretics. Should be canceled gradually within 3-4 days.

6.5.4. Criteria for Outpatient Management

Steady normalization of BP as a result of the correctly chosen scheme of treatment is a criterion for transferring the patient to outpatient management.

6.6. Outpatient Management of Patients with AH

6.6.1. Objectives and Expected Results of the Stage

Continuous monitoring of BP levels and patient’s condition, early detection of AH and its complications are the major objectives of this stage.

6.6.2. Equipment

Devices for BP measurement and an electrocardiograph should be available. This equipment should be available for patients at a time that is convenient for them.

6.6.3. Algorithm of Outpatient Management

Outpatient management of patients with AH is one of the major components of treatment of AH. It is also possible to detect and diagnose AH when the patient’s BP is repeatedly elevated within a definite period of time (not less than 3 times within 2 months). Patients’ monitoring may be conducted in different ways. It may include physician’s visits to the patient. Or the patient himself/herself may measure BP and transfer this information to physician’s office. Outpatient management is particularly important when medications are chosen or when a scheme of treatment is changed.

Outpatient Management According to Stage of AH Development.

Borderline Hypertension:

In case of primary detected AH: monthly visits during 6-month period.

For further management: 2-3 visits annually and examination in order to prevent damages of target-organs.

The patient is considered to be almost health if BP remains stable within 6 months

Mild Hypertension (BP systolic 140 – 159mmHg, diastolic 90 – 99 mmHg)

During a period of medication selection: 1 visit within 2 weeks.

Further: 3-4 visits annually provided stabilization of BP at the level of 140/90 mm. Hg.

Moderate Hypertension: (BP systolic 160 – 179 mmHg, diastolic 100 – 110 mmHg)

During a period of medication selection: 1 visit within 2 weeks.

Further: 1 visit every 3 months.

Severe Hypertension: (BP systolic over 180, diastolic over 110)

Medication selection period within 1 week. 1 visit within 2 weeks.

Further: 1 visit every 3 months.

Hypertension in old patients:

Treatment is provided with the regard for all concomitant conditions.

6.64 Criteria for hospitalization

1. AH non responsive to outpatient treatment
2. Crisis
3. Development of complications
4. Concomitant diseases



Appendix

Control Chart of Patient with Arterial Hypertension (AH)

Tula Oblast; region, town _____, MI _____

Name _____ Date of Birth _____ Sex _____ # _____

Address _____

Home Phone # _____ Business # _____ Place of Work _____

I. The date the chart was opened _____ **II. Drug allowance** _____

III. Diagnosis	ICD-10	Date of diagnosis	Diagnosed for the first time (+/-)

IV. Health promotion program undergone (date)

V. Recommendations on non-medication treatment followed:

Risk factors	Presence (+/-)	Free of risk factors (date)
Overweight		
Smoking		
Hypodynamia		
Salt-excessive food		
Alcohol abuse		

VI. Dynamics of the AH patient condition:

Condition	Dates
BP normalization	
Hypertensive crisis	
Stroke	
Infarction	
Disability (group)	

VII. Hospitalizations due to AH and its complications:

Reason for Hospitalization	Dates (duration)

VIII. Outpatient management canceled (reason, date)

IX. Name of physician in charge	Observation period		Doctor's signature
	From	To	

