HIGH BLOOD PRESSURE MANAGEMENT

Report on a WHO training seminar

Barcelona, Spain
24–26 October 1996
TARGET 9

REDUCING CARDIOVASCULAR DISEASE

By the year 2000, mortality from diseases of the circulatory system should be reduced, in the case of people under 65 years by at least 15%, and there should be progress in improving the quality of life of all people suffering from cardiovascular disease.

ABSTRACT

A recent survey of the Countrywide Integrated Noncommunicable Diseases Intervention (CINDI) programme identified that better compliance with and enhancement of non-pharmacological management of high blood pressure are (Austria, Belarus, Bulgaria, Canada, Croatia, Czech Republic, Estonia, Finland, Germany, Hungary, Israel, Kazakhstan, Kyrgyzstan, Lithuania, Malta, Poland, Portugal, Russian Federation, Slovakia, Slovenia, Spain (Catalonia), Turkmenistan, Ukraine, United Kingdom (Northern Ireland)), especially in central and eastern Europe.

In order to improve the quality of care in high blood pressure management in individuals, the CINDI Working Group on Hypertension organized the training seminar where discussions focussed on strategies to improve the adherence to hypertension management and the level of non-pharmacological intervention.

As a result of the seminar, the CINDI Working Group on Hypertension will work towards preparing an official statement on self-measurement of blood pressure; defining the situation in and needs of CINDI countries vis-à-vis blood pressure management; organizing seminars on the assessment of nutrition, physical activity and stress, and on the role of the pharmacist in blood pressure management.

Keywords

HYPERTENSION – therapy
HYPERTENSION – prevention and control
BEHAVIOR THERAPY
SELF CARE – instrumentation
EUROPE
EUROPE, EASTERN

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Introduction

A recent survey within the CINDI programme revealed that better compliance with and enhancement of non-pharmacological management of high blood pressure are priority issues in hypertension control in all countries participating in the programme, especially in the countries of central and eastern Europe (CCEE).

The CINDI Working Group on Hypertension therefore decided to organize a training seminar with the aim of discussing the most successful strategies related to non-pharmacological management of hypertension and to improving the compliance of patients with therapeutic regimens.

The seminar was sponsored by the Department of Health and Social Security of the Autonomous Government of Catalonia (Spain), in collaboration with the Catalan Foundation of Hypertension and the Catalan Society of Hypertension. Dr L. Salleras, General Director of Public Health, welcomed the participants on behalf of the Minister of Health and Social Security of Catalonia and thanked the World Health Organization Regional Office for Europe, and especially the CINDI programme, for organizing the seminar in Barcelona.

Dr A. Shatchkute, Regional Adviser for Chronic Disease Prevention, introduced the main objectives of the seminar and thanked the Department of Health and Social Security of the Autonomous Government of Catalonia for hosting the Seminar.

Professor H. Pardell, Executive Director of the CINDI Programme, Catalonia, Spain, introduced the programme of the seminar which included some comprehensive introductory lectures and sessions devoted to the specific topics.

Hypertension control in the framework of the CINDI programme – a case model of improving and implementing preventive practices in PHC

In his introductory lecture, Professor Pardell drew the attention of the participants to the terms of reference of the CINDI Working Group on Hypertension and revisited the most relevant figures concerning stroke mortality, prevalence of high blood pressure, and hypertension control levels in demonstration areas of CINDI countries. He emphasized that, on average, less than 15% of hypertensive men and 23% of hypertensive women are receiving treatment adequate to maintain their blood pressure readings below 160/95 mm Hg. Since hypertension, like other chronic conditions, is the result of the social and physical environments as well as of genetic influences, preventive interventions are needed to reduce its prevalence and incidence. Concerning secondary prevention of hypertension, Professor Pardell underlined the following recommendations of several CINDI reports, namely:

- to produce or review guidelines on: management of high blood pressure, diagnostic criteria for high blood pressure and risk profile, drug treatment criteria, the role of non-pharmacological treatment, follow-up, patient education, and management of other cardiovascular risk factors;
- to develop and implement models of computerized information systems for risk profiles of hypertensive people;
• to provide continuing education for health professionals, especially in non-pharmacological management strategies and communication skills in order to ensure the quality of care of hypertensive patients;
• to increase population awareness of high blood pressure as a risk factor for cardiovascular diseases;
• to develop integrated interventions based on intersectoral collaboration.

Dr Shatchkute then pointed to three pivotal concepts related to hypertension in the framework of the CINDI Programme:
• the high prevalence of hypertension;
• the need to monitor hypertension-related health trends;
• the relevance of hypertension control as a case model for implementing prevention in clinical settings.

The following areas should be considered in the management of high blood pressure in general practice: smoking cessation, healthy nutrition, physical fitness, relaxation, the partnership between patient and doctor (compliance) and self-management.

The blood pressure values achieved and modification of the overall cardiovascular risk profile must be taken as recommended indicators.

New models of high blood pressure management need to be developed since general practitioners (GPs) do not have enough time, knowledge or interest, have new tasks to face, are working under budgetary restrictions, and face challenges connected with the management of individual cases (such as patients starting to smoke again), low compliance with therapeutic treatment, communication skills and personal behaviour (particularly where smoking is concerned).

The self-management model, which is based on self-measurement of blood pressure and self-medication, could certainly be adapted to the new requirements. Self-measurement of blood pressure offers great opportunities, although it has some limitations such as relatively short experience, the “white coat” phenomenon, the need to train patients, and the lack of information about available devices and of process and outcome indicators.

Computer-based health education programmes for hypertensive people are another new model of improvement in hypertension control.

In her presentation of the pharmacy-based model, Dr Shatchkute focused mainly on high blood pressure, cardiovascular risk profile and other noncommunicable disease prevention approaches. Pharmacists have a particularly relevant role to play in screening for high blood pressure, health education and monitoring of hypertensive people undergoing treatment. Partners in this model could include the EuroPharm Forum, the CINDI network, pharmaceutical and GP associations in the participating countries, patient associations and health education experts.

Professor F. de Padua focused on the different opportunities for considering hypertension control as a case model based on the Portuguese experience. In fact, high blood pressure control could be regarded as a very useful case model in the following situations:
• general screening of health status
• health education
• prevention in clinical settings
• the involvement of nongovernment organizations (NGOs) and churches in prevention
• self-medication initiatives
• multifactorial approach to noncommunicable disease control
• prevention at workplaces
• prevention through political and entrepreneurial organizations
• prevention through the media
• primary care research
• information support to GPs’ preventive activities.

**Behavioural aspects of non-pharmacological management of high blood pressure**

In her lecture on the behavioural aspects of non-pharmacological management of high blood pressure, Professor K. Orth-Gomér defined behavioural medicine as “the development and integration of biomedical and behavioural science and techniques and the application of this knowledge and these techniques to etiology, diagnosis, treatment and prevention”, highlighting the necessity for interdisciplinary cooperation to be adequately modelled to the complexities of chronic diseases.

Professor Orth-Gomér emphasized that many interventions in the field of chronic disease have failed to recognize the importance of the behavioural aspects of preventive efforts. Intrapersonal (psychological, genetic, constitutional), interpersonal (social, cultural) and environmental (physical, legal, political) factors may be combined in various ways to affect a disease-promoting or protective process, which makes it easier to understand and estimate how this risk may be affected by these factors. Thus, techniques for intervention and prevention are directed toward the social environment, the work situation, modifications to personality and behaviour, and even psychophysiological processes.

The following behavioural interventions should be implemented in connection with the non-pharmacological management of high blood pressure:

• modification of behavioural risk factors;
• modification of direct psychophysiological influences by means of:
  – biofeedback
  – relaxation
  – stress management;
• modification of psychosocial environments through:
  – improvement of social support
  – improvement of autonomy at work.

**Smoking**

Professor Pardell considered that getting hypertensive people to stop smoking was a fundamental behavioural intervention. He summarized the information available on the dramatic increase of the total risk (and more than 4.5-fold increase in risk for CHD) when an individual both smokes and has high blood pressure; the negative influence of cigarette-smoking on the response to antihypertensive therapy; and more recent findings about the physiopathological and even etiological link between smoking and high blood pressure, all of which support the notion that smoking could be a predisposing factor for chronic high blood pressure.
All this fully justifies the efforts made to help hypertensive people stop smoking for life. Unfortunately, there are many obstacles to the involvement of health professionals in antismoking activities. These can, however, be overcome if:

- scientific societies and professional organizations play a greater role in disseminating existing knowledge about the harmful effects of smoking on human health;
- smoking cessation programmes are implemented for health professionals who smoke;
- educational materials are produced for health professionals to facilitate and stimulate their active involvement in counselling and even treating the smokers they see in their clinical settings;
- smoking prevention and cessation issues are included in the academic curriculum.

**Nutrition**

Professor J.R. Viskoper referred to the many examples in international literature and to his own experience in Israel of nutritional modifications which would be fundamental in recommendations for improving compliance and non-pharmacological management of hypertension. These could be summarized as follows:

- reduced salt intake
- increased consumption of vegetables and fresh fruit
- decreased intake of animal (saturated) fats
- reduced intake of calories
- increased consumption of vegetable and fish oils
- reduced alcohol intake.

For these objectives are to be achieved, the population will need to be educated on healthy nutrition, nutrition should be included in the academic curriculum, and food production and prices policies should be implemented.

**Public education and patient involvement in hypertension control**

Professor A. Nissinen tackled the crucial topic of public education and patient involvement in hypertension control programmes. The North Karelia experience had shown that involving the community was paramount to the success of hypertension control plans and that nurses’ tasks in hypertension control initiatives at regional and national levels were highly relevant.

She summarized the trends in hypertension-related health indicators in North Karelia and in Finland as a whole, pointing out that while hypertension treatment and control rates had remained almost steady from 1982 to 1992, the cost of treatment for one hypertensive person had risen from US $149 to US $285 over the same period. This was a convincing argument in favour of the non-pharmacological approach to the management of hypertension, particularly in central and eastern Europe and in developing countries.

Dr J. Klumbiene described the health clubs for hypertensive people in Lithuania which had been organized as a basic element in the social support for improving high blood pressure control at community level. The different chronic conditions (hypertension, diabetes, asthma, etc.) have their own clubs, all sharing the same main goals. In the case of hypertension, the clubs aim to provide:
• education for hypertensive patients
• emotional support for people with hypertension
• direct services to help members cope with their problems
• a range of social activities
• activities to increase public awareness of health promotion and disease prevention.

The most frequently used methods in educational programmes for club members are:

• individual counselling
• working groups
• the teaching of practical skills
• written material.

**Communication**

Dr R. Tresserras revised the basics of communication theory, pointing out that interpersonal communication is a two-way process. It should be remembered that to listen does not mean to pay attention, to pay attention does not mean to understand, to understand does not mean to agree, to agree does not means to act, and to act does not mean to maintain a course of action.

Interpersonal communication is essentially transactional and one of its most important components is the non-verbal aspect – it is not what you say but how you say it that counts. To improve interpersonal skills for health care communication, attention should be paid to:

• giving accurate and sufficient feedback to others
• listening attentively (and non-judgementally) to others
• interpreting accurately what others are saying
• giving clear instructions
• treating others in a professional manner
• communicating information clearly
• establishing credibility with others.

**Compliance in hypertension control**

Professor S. Ebrahim remarked on the difficulties in defining compliance and the appropriateness of the term “adherence”, as well as the impact of poor compliance on hypertension control (i.e. if treatment efficacy is 30% and the compliance rate 50%, the net effect of treatment is only 15%). There is a positive relationship between compliance and achieving target blood pressure. Furthermore, the change in diastolic blood pressure under the effect of treatment is very strongly correlated with compliance rates.

Most patients do not comply with the antihypertensive regimens because of:

• the duration of the disease
• the side effects of the pills
• the complicated nature of the regimen
• the symptomless condition of hypertension
• health beliefs opposed to pill-taking.

Unfortunately, there is only limited information on compliance and on the obstacles to achieving good compliance in practice with both pharmacological and non-pharmacological antihypertensive regimens.
In the case of doctors, these obstacles can be connected to:

- knowledge
- time
- memory
- incentives
- feedback or audit.

In the case of patients, they can be connected to:

- knowledge
- psychological state (denial)
- risk perception
- male gender
- cognitive impairment
- inconvenience of care provision.

Professor Ebrahim analysed the strategies most frequently used to overcome these obstacles.

In the case of doctors, these include:

- continuing medical education
- re-accreditation
- financial incentives
- fines
- monitoring of prescription practices
- audits
- the provision of guidelines.

In the case of patients, they include:

- education/counselling
- tailoring routines to their needs
- reminders when to take pills
- self-monitoring of blood pressure
- rewards
- home or workplace care
- simplifying the regimens.

Dr A. Roca-Cusachs then analysed the different methods available to measure therapeutic compliance. Although they are many, the measurement of compliance is not easy in practice. The most well known methods can be classified in two groups:

*direct methods*: monitoring drug concentration levels in blood/plasma  
measuring drug urinary excretion  
detecting a marker compound  
urinary ion excretion

*indirect methods*: doctors’ or nurses’ clinical judgement  
asking the patient or relatives  
the patient’s record in keeping appointments  
assessing the efficacy of anti-hypertensive treatment  
assessing the occurrence and degree of predictable side effects  
counting pills  
checking prescription records.
Both groups have advantages and disadvantages. The more positive features of the direct methods are their simplicity, accuracy, speed and enhancement of the validity of interview data. Conversely, they are invasive and expensive, there are limitations on using laboratory techniques, their aims can be easily perceived by the patient, they can only be used for a limited number of patients and for a relatively short observation time, they do not give information about dosage or timing and thus only reflect immediate compliance, and they do not provide prompt results. Finally, different pharmacokinetic profiles of patients must be taken into account.

Indirect methods are easy, cheap and very useful in primary care, and they reflect patients’ attitudes. However, they are too subjective and thus overestimate compliance because of patients’ possible embarrassment, forgetfulness and fear, and they only detect some of those who do not comply.

Therefore, in practice a combination of different methods is used in order to improve the measurement of compliance.

**Self-measure of blood pressure**

Dr J.L. Tovar emphasized the relevance of self-measurement of blood pressure as a strategy:

- to improve therapeutic compliance
- to avoid over-treatment, and
- to avoid hasty changes in the therapeutic regimen due to the “white coat” phenomenon.

Additionally, self-measurement obviates the need for more frequent visits to the doctor, encourages patients to participate more actively in their own treatment and aids physicians to evaluate the efficacy of treatment and to simplify drug regimens.

The most commonly used self-measuring devices are: mercury sphygmomanometers, aneroid manometers and electronic manometers. The mercury sphygmomanometer is the most accurate apparatus (the classical clinical standard in blood pressure measurement). However, it is difficult to manage in self-monitoring and its use entails the risk of mercury contamination.

The advantages of the aneroid manometer are that it is reasonably accurate and cheap and easy to check and operate, especially if it is provided with a D-ring cuff, but its measuring accuracy needs to be ensured by periodic control.

The advantages of electronic devices are that they are easy to use, a stethoscope is not required, and observer bias is avoided. The disadvantages are that many models do not always measure accurately, most of them are very expensive, they are difficult to repair, patients need to be trained to use them and some patients are unable to carry out self-measurement properly (because of anxiety, disability or cultural level).

Dr Tovar pointed out the need for a statement on self-measurement devices with clear recommendations for their validation and use in daily practice.

**Conclusions**

1. Hypertension is a highly prevalent chronic condition, affecting more than 20% of the adult population in most CINDI countries.
2. Hypertension control remains an unsettled question since fewer than 15% of hypertensive men and 23% of hypertensive women receive adequate treatment to maintain their blood pressure figures below 160/95mm Hg.

3. Hypertension-related health events should be monitored to evaluate the efficacy of hypertension control programmes.

4. Hypertension control programmes can be viewed as case models for implementing prevention in clinical practice.

5. Non-pharmacological measures must be recommended as a fundamental step in hypertension control.

6. The application of non-pharmacological measures to the whole population is useful for primary prevention.

7. The most frequently used non-pharmacological interventions are:
   - stress management
   - smoking cessation
   - reduction of salt intake
   - increase in vegetable and fresh fruit consumption
   - reduction of total calorie intake and saturated fats in the diet
   - reduction of alcohol intake.

8. Patient involvement and public education are key elements in improving hypertension control at community level.

9. Various strategies can be used to improve patient compliance with non-pharmacological and pharmacological regimens.

10. Self-measurement of blood pressure can contribute decisively to improving compliance and to the involvement of hypertensives in controlling their own blood pressure.

11. The main areas for future action are:
   - healthy nutrition
   - physical activity
   - relaxation
   - self-management
   - partnership (compliance).

12. New models of high blood pressure management should be developed, based mainly on:
   - self-management;
   - the use of computers in health education programmes for hypertensive people and health monitoring systems for health professionals;
   - more active involvement of pharmacists and other health professionals.
Recommended plan of action

In the light of these conclusions, the CINDI Working Group on Hypertension recommends that the following actions be implemented in the near future:

- an official statement should be prepared on self-measurement of blood pressure;
- a survey should be carried out on the situation in and needs of CINDI countries in connection with blood pressure management;
- a seminar should be organized on the assessment of nutrition, physical activity and stress;
- a seminar should be organized on the role of the pharmacist in blood pressure management (collaborative CINDI-EuroPharm-Forum project).
Annex 1

PROGRAMME

Thursday, 24 October 1996

15.00–15.30 Registration
15.30–16.00 Opening session (Dr L. Salleras, Professor H. Pardell, Dr A. Shatchkute)
16.00–16.20 Hypertension control in the frame of the CINDI programme (Professor H. Pardell)
16.20–16.40 Hypertension control – a case model in implementing prevention in the primary care-CINDI context (Dr A. Shatchkute)
16.40–17.15 Break
17.15–18.00 Hypertension control as a case model of improving preventive practices in primary health care (Professor F. de Padua)
18.00–18.15 Discussion

Friday, 25 October 1996

09.00–09.45 Behavioural aspects of non-pharmacological management of high blood pressure (Professor K. Orth-Gomer)
09.45–10.00 Discussion
10.00–11.00 Smoking cessation
10.00–10.20 Introduction (Professor H. Pardell)
10.20–10.25 Discussion leader (Dr J. Klumbiene)
10.25–11.00 General discussion on smoking cessation strategies
11.00–11.30 Break
11.30–12.30 Nutrition
11.30–11.50 Introduction (Professor J. R. Viskoper)
11.50–11.55 Discussion leaders (Dr A. Egnerova, Dr O. Volozh)
11.55–12.30 General discussion on nutrition in relation to high blood pressure
12.30–14.00 Lunch
14.00–14.45 Public education and patient involvement in hypertension control (Professor A. Nissinen)
14.45–15.00 Discussion
15.00–16.00 Social support in improving high blood pressure management
15.00–15.20 Clubs for people with hypertension (Dr J. Klumbiene)
15.20–15.25 Discussion leader (Professor A. Nissinen)
15.25–16.00 General discussion on how to improve social support
16.00–16.30 Break
16.30–17.30 Improving communication skills
16.30–16.50 Introduction (Dr R. Tresserras)
16.50–16.55 Discussion leaders (Professor F. de Padua)
16.55–17.30 General discussion on how to improve communication skills
### Saturday, 26 October 1996

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<td>Definition of compliance in hypertension—a chronic condition (Professor S. Ebrahim)</td>
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<td>09.45–10.00</td>
<td>Discussion</td>
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<td>10.00–11.00</td>
<td>Measurement of compliance</td>
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<td>10.00–10.20</td>
<td>Introduction (Dr A. Roca-Cusachs)</td>
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<td>Self–measurement of blood pressure</td>
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<td>11.30–11.50</td>
<td>Introduction (Dr P. Arandi, Dr J.L. Tovar)</td>
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<td>11.50–11.55</td>
<td>Discussion leader (Dr A. Egnerova)</td>
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<td>11.55–12.30</td>
<td>General discussion: What are the problems, and the strategies to solve them?</td>
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<td>16.00–17.00</td>
<td>Conclusions and recommendations</td>
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### Annex 2

**Interest in Developing Hypertension Management Modules**

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Annex 3

BACKGROUND MATERIAL
(distributed during the Seminar)


Annex 4

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