



## Je li moguća prevencija arterijske hipertenzije?

## Is the prevention of arterial hypertension possible?

**Duško Kuzmanić**

*Clinical Hospital Centre Zagreb, Zagreb*

**A**rterijska hipertenzija (AH) je važan faktor rizika kardiovaskularnih i bubrežnih bolesti. Prema podacima iz 2000. god. tada je u svijetu od AH bolovalo 972 milijuna ljudi. Procjenjuje se da će taj broj do 2025. god. biti veći od 1,5 milijardi ljudi. Nedavna procjena SZO ukazuje da je AH odgovorna za 54% cerebrovaskularnih incidenata i 47% ishemijske bolesti srca. Sniženje arterijskog tlaka (AT) evidentno smanjuje rizik mortaliteta, na primjer sniženje sistoličkog tlaka za 10 mmHg smanjuje učestalost kardiovaskularnih komplikacija za 20-25%. Meta-analiza 61 epidemiološke studije s milijun bolesnika pokazala je da se rizik kardiovaskularne smrti podvostručuje sa svakim povišenjem AT za 20/10 mmHg. Ovaj rizik progresivno raste počevši od vrijednosti AT 115/75 mmHg! Svi ovi epidemiološki podaci ukazuju na važnost liječenja AH.

Kada govorimo o klasifikaciji AH, američke (JNC 7) i europske (ESH/ESC 2007) smjernice smatraju normalnim ili optimalnim AT vrijednosti <120/80 mmHg. Američke smjernice raspon AT 120-139/80-89 mmHg označuju prehipertenzijom, dok europske smjernice za isti raspon AT razlikuju dvije kategorije: normalan AT 120-129/80-84, visoko normalan AT 130-139/85-89 mmHg. Osobe koje se nalaze unutar navedenog raspona AT (viši od 120/80, a niži od 140/90 mmHg) nose povećan rizik nastanka AH. Tome u prilog govore rezultati Framinghamske studije, osobe s normalnim ili visokonormalnim AT češće prelaze u hipertenzivnu kategoriju tijekom četverogodišnjeg praćenja. Stoga se postavlja pitanje je li sniženje AT u osoba s prehipertenzijom prevenira progresiju k AH i povećanom kardiovaskularnom riziku?

Današnje smjernice ukazuju na potrebu provođenja nefarmakoloških mjera, tj. promjene životnih navika. Preventivne mjere treba primjenjivati još u djetinjstvu, npr. prevencija debljine treba početi još u dječjoj dobi, jer ako se nastavi sadašnji trend prisutnosti debljine u populaciji, sljedeća generacija u SAD biti će prva koja će živjeti kraće od svojih roditelja! Među ostalim nepovoljnim učincima, debljina doprinosi nastanku AH. Druga važna mjera je smanjen unos soli koji također treba početi već u djetinjstvu. Kontrolirani pokusi su pokazali da smanjen unos soli za 54% dovodi do signifikantnog sniženja AT, što smanjuje kasniji porast AT koji se odvija sa životnom dobi. Ova mjera ima svoju djelotvornost i u odraslih osoba što je pokazano na primjenu Finske. Od 1970. god. smanjen je unos natrija za 30%, od 4.700 na 3.300 mg/d. Posljedica ovog postupka je sniženje dijastoličkog tlaka u populaciji za 10 mmHg, a to je dovelo do 60%-nog smanjenja smrtnosti od ishemijske bolesti srca i cerebrovaskularnih incidenata. Osim nefarmakoloških mjera otvoreno je pitanje farmakoterapije bolesnika s prehipertenzijom. To pitanje otvorile su dvije kliničke studije (TROPHY, PHARAO) koje su pokazale da medikamentno liječenje snizuje AT i sman-

**A**rterial hypertension (AH) is an important risk factor of cardiovascular diseases and renal diseases as well. According to the data from the year 2000, there were 972 millions of people suffering from AH on an international level. This number is estimated to rise to 1.5 billions of people by the year 2025. A recent estimation by WHO has stressed that AH is accountable for 54% of cerebrovascular incidents and 47% for ischemic heart diseases. Reducing blood pressure (BP) obviously reduces mortality risk, as for example, reducing systolic pressure by 10 mmHg results in a decrease in the frequency of cardiovascular complications by 20-25%. Meta-analysis of 61 epidemiologic studies with 1 million of patients has showed that the risk of cardiovascular disease doubles by every increase in BP by 20/10 mmHg. This risk progressively rises commencing with the value BP 115/75 mmHg! All such epidemiologic data indicate the importance of AH treatment.

Regarding classification of AH, the American (JNC 7) and European (ESH/ESC 2007) guidelines find the BP values <120/80 mmHg normal or optimal. The American guidelines indicate the BP 120-139/80-89 mmHg span as prehypertension, while the European guidelines for the same BP span differentiate two categories: normal BP 120-129/80-84, highly normal BP 130-139/85-89 mmHg. The persons grouped within the above BP span (higher than 120/80, and lower than 140/90 mmHg) are exposed to an increased risk of AH. The findings of the Framingham study support the above mentioned, whereas persons with normal or highly normal BP more often pass to hypertensive category during the period 4 years of monitoring. Therefore, it is questionable whether reduction of BP in persons with prehypertension prevents progression of AH and increased cardiovascular risk?

The most recent guidelines indicate the necessity of carrying out non-pharmacological measures, that is, change to life habits. Preventive measures need to be applied in the childhood, such as prevention of obesity needs to start in childhood, because if the current obesity trend continues in population, the next generation in the USA will be the first generation to live shorter than their parents! Among some other negative effects, obesity leads to occurrence of AH. Another important measure is a reduced amount of table salt that also needs to be applied in childhood. The controlled tests have showed that a reduced amount of salts by 54% leads to a significant reduction of BP, which reduces a subsequent increase of BP which occurs in line with people's age. This measure is efficient in adults, which is shown in the example of Finland. Since 1970, the intake of sodium has been reduced by 30%, from 4.700 to 3.300 mg/d. The consequence of such a procedure is the reduction of diastolic pressure in population by 10 mmHg, which led to 60% of reduction of ischemic heart disease and cerebrovascular incidents. Apart from



juje prijelaz prehipertenzije u AH. Međutim, ostaje otvoreno pitanje je li ova terapija smanjuje i broj kardiovaskularnih incidenata. Dok se ne dobiju rezultati većeg broja kliničkih studija, još uvijek na prvom mjestu ostaje rana primjena preventivnih dijetetskih mjera.

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E-mail: [dusko.kuzmanic@zg.htnet.hr](mailto:dusko.kuzmanic@zg.htnet.hr)

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non-pharmacological measures, there is an open question relating to pharmacology of patients with pre-hypertension. This question has been opened by the two clinical studies (TROPHY, PHARAO) that showed that pharmacological treatment reduces BP and reduces the transition of pre-hypertension into AH. However, there is an open question as whether this therapy reduces the number of cardiovascular incidents as well. By the time we obtain the findings of a larger number of clinical studies, there are early preventive dietetic measures in place being the most important ones.