

Improving Blood Pressure Control in the Hypertensive Population

Challenges of Low Adherence and Early Discontinuation

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In high-income countries, ≈ 1 in 4 adults have an elevated blood pressure (BP), when defined as an office BP $>140/90$ mmHg.^{1,2} In the United States, this prevalence reaches 40% in blacks and $>60\%$ in adults >60 years of age² with the same definition. High BP put these individuals at greater risk of developing hypertension-mediated organ damages or dying prematurely from a cardiovascular event. During the last decades, many initiatives and campaigns have been set up to increase the awareness and the control of hypertension in the population. The last example is the May Measurement Month 2017, during which BP was measured in >1.2 million unselected adults around the world. This campaign showed that 17.3% of participants with an elevated BP were not treated and 46.3% of those receiving treatment did not have a well-controlled BP. Yet, in contrast to these disappointing results, several surveys have demonstrated very positive trends in terms of global cardiovascular protection. These include a decrease in age-standardized BP over years in high-income countries,¹ a positive trend in age-adjusted percentage of controlled hypertension among treated US adults with an increase from 31.6% in 2000 to 53.9% in 2014,² and a constant decrease in cardiac death in the US population during the last 40 years. Of course, this latter observation cannot be attributed to a better control of BP only. It rather reflects the benefits of the global efforts made to reduce the impact of major cardiovascular risk factors, that is, smoking, high cholesterol levels, diabetes mellitus, overweight, and high BP.

Yet, recent US data on the percentage of treated and well-controlled hypertensive patients suggest that one may have reached a plateau. Indeed, in the 2015 to 2016 survey period, the percentage of treated hypertensives with a controlled BP had decreased from 53.9% to 48.3%, that is, 5.6% lower than in 2014² (Figure). A similar trend was noted in France with no improvement in the prevalence of hypertension found between 2006 and 2015 and an alarming deterioration of BP control observed mainly in hypertensive women (a reduction from

36% to 29%) with 6.5% less women treated for hypertension in 2015 than in 2006.³ These disappointing figures raise one question: why is it so difficult to improve the global management of hypertension further in developed countries? In 2015, a Lancet Commission on Hypertension asked experts of the younger generation to identify the most pertinent problems and to propose actions to improve the future management of elevated BP both at the population and at the individual level.⁴ This group came up with 10 proposals. Among key actions, one can cite an improvement in the quality of BP measurements, a better identification of people at high risk, and the promotion of patients' empowerment. Of particular interest is the recognition by the commission that poor adherence is one of the main causes for uncontrolled BP in treated patients and that low adherence to antihypertensive treatment has a marked negative impact because it is associated with not only poor BP control but also a higher incidence of adverse cardiovascular events.⁵ In this respect, the position of the commission confirms previous statements suggesting that there is an important need to develop and reinforce the clinical approaches to overcome poor adherence.

In terms of adherence, the management of hypertension is facing 3 major issues: the initiation, the implementation, and the discontinuation. In the United States, data have shown that the primary nonadherence rate, reflecting noninitiation, affects 26.4% of hypertensive patients receiving an electronic prescription. Regarding the discontinuation rate and the implementation, data can be derived from large healthcare or pharmacy registries or insurance databases in the absence of prospective studies. In the present issue of *Hypertension*, Tajeu et al⁶ present the results of their analysis of the trends in discontinuation rate and prevalence of low adherence during the first year of treatment in $>370\,000$ commercially insured patients aged <65 years, who started their antihypertensive medication between 2007 and 2014. Discontinuation was defined as having no days of medication available during the final 90 days of the 365 days following initiation. The implementation or adherence was assessed using the proportion of days covered by prescriptions and was considered low when it reached $<80\%$. The interesting observation made in this analysis is that discontinuation rate concerned 1 in 4 newly treated patients and that this rate remained quasi unchanged between 2007 and 2014. As far as adherence was concerned, 40.2% of patients had a low adherence in 2014, and only a very modest 2% improvement occurred between 2007 and 2014. The authors were able to identify a number of determinants of high discontinuation and low adherence. Thus, as reported in previous analyses,

The opinions expressed in this article are not necessarily those of the editors or of the American Heart Association.

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(*Hypertension*. 2019;74:29–31.)

DOI: 10.1161/HYPERTENSIONAHA.119.12598.)

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Hypertension is available at <https://www.ahajournals.org/journal/hyp>
DOI: 10.1161/HYPERTENSIONAHA.119.12598

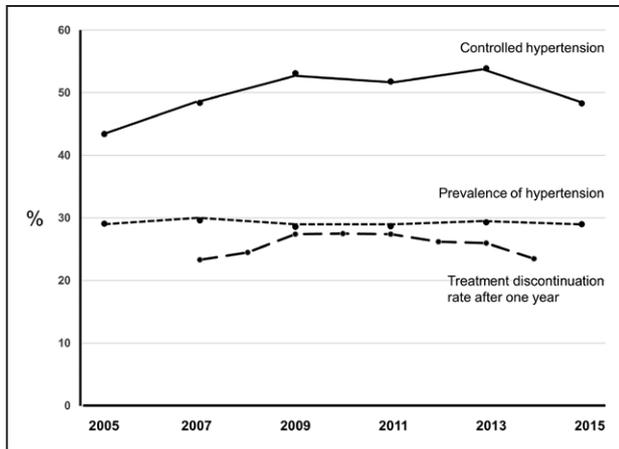


Figure. Age-adjusted trends in hypertension and controlled hypertension among adults aged ≥ 18 y in the United States, and treatment discontinuation rate during the first year of treatment. Adapted from Fryar et al² and Tajeu et al⁶ with permission.

age, sex, drug classes, comorbidities, copayment, and the type of insurance plan had significant impacts on the discontinuation rate, as well as on the adherence level. Unfortunately, the database did not contain any information on race/ethnicity, a factor, which may have had a major influence on both parameters. There was also no information on the quality of BP control or on the discontinuation rate after the first year, which may aggravate further the situation. At last as mentioned by the authors, one does not really know how patients took their medications on a day-to-day basis. Therefore, the true nonadherence might be worse than commonly thought.

It is interesting to interpret these data in the light of previous observations. Thus, the same authors have done a comparable analysis on US patients >65 years of age with a different insurance plan.⁷ In this group of patients, the discontinuation rate was slightly lower at 21% and stable between 2007 and 2012. Low adherence was also lower at $\approx 35\%$ with a significant reduction between 2007 and 2012 from 37% to 31.4%. Of note, in this age group, low adherence, but not discontinuation, was more common among racial/ethnic minorities and those with a lower income. These results suggest that the problems of discontinuation and adherence concern all hypertensive patients whatever their age even though the prevalence is a bit lower in elderly and higher in minorities, such as Hispanics or blacks. It is also interesting to compare these American data with European observations. Thus, an analysis was performed in Sweden on 5225 patients (55% women; mean age, 61 years) initiated on antihypertensive drug treatment during 2006 to 2007⁸. In this population, 26% of patients discontinued treatment during the first year, and an additional 9% stopped during the second year. These figures are quite comparable to the United States despite the fact that in Sweden, all inhabitants are covered by a state insurance and the access to health care is available to everybody. Yet, even in Sweden, subjects with a lower economic status had a higher discontinuation rate. The comparison with US data points out the fact that other more profound and personal reasons may contribute to the patients' decision to intentionally discontinue medications. In this situation, barriers to overcome may reside in the patients' beliefs and fears, in their perception of the

risks and benefits of being treated, or in their level of understanding of information provided by physicians. These aspects are certainly more difficult to change than reducing the incidence of side effects choosing better drug classes or preventing drug omissions using reminders.

Now that we know that 25% of hypertensive patients do not start their treatment and as many individuals discontinue their treatment during the first year or have an adherence $<80\%$, what shall we do? How many new studies do we need to be convinced that discontinuation and poor adherence are old problems that need new solutions? It is now time to act!

In this respect, the development of techniques enabling to measure drug levels in plasma or urines has improved our ability to detect patients with a poor adherence and those who discontinued their treatment, but this is not yet available to all physicians. Electronic monitoring of adherence has demonstrated the multiple patterns of poor adherence, which may need specific interventions.⁵ In the last decades, several approaches were proposed to raise hypertension control through quality improvement programs, which had a positive impact on adherence. In general, these programs increased the number of individuals achieving BP targets, and the most effective interventions were those involving health professionals other than the patient's physician.⁹ However, the peak improvement often occurred at 6 months and was not maintained at 1 year. The cost-effectiveness of these approaches has been questioned. Moreover, one does not know whether these approaches really prevented the noninitiation and early discontinuations. Recently, authors of the MAP (Measure Accurately, act rapidly, and Partner with patients) initiative reported their first results.¹⁰ The aim of this project was to develop, in the setting of Family Practice Clinics, an easy accessible program facilitating the management of hypertensive patients without involving additional personnel to reduce the costs. In many aspects, MAP fulfilled the proposals of the Lancet Commission, for example, better BP measurement, a protocol-guided escalation of medications to counteract medical inertia, and patient empowerment through BP self-monitoring and shared decision-making to increase adherence. An impressive improvement of BP control was found in this study with an increase in the number of patients reaching target BPs from 64.4% to 73.6% at 1 year. Interestingly, the benefits of MAP were greater in black than in white adults. These results are very promising, but we do not know yet whether the MAP initiative reduces the incidence of discontinuation and how much drug adherence is improved. Another cheap and easy approach could be the systematic use of a structured questionnaire by pharmacists or other healthcare professionals such as the Drug Adherence Work-Up Tool (DRAW), which is a well-designed tool to initiate a discussion on how patients take their drugs and what are their beliefs and worries. (https://www.colorado.gov/pacific/sites/default/files/DC_CD_Adherence-Screening-DRAW_Million-Hearts.pdf), verified January 2019).

As mentioned above, psychosocial aspects are well-identified determinants of adherence, and their role is particularly important when patients must decide to start on a new medication or to stay on therapy after few months. In quality improvement projects, the focus is essentially on the share

decision process and on the empowerment through self BP monitoring. A careful in-depth evaluation of psychosocial factors should also be performed, but this would imply more time with patients and specific skills to run patients' interviews. Today, most physicians and healthcare providers have neither the time nor the competences to do that. This is the reason why the Lancet Commission Hypertension recommends a better education of doctors and healthcare professionals to increase their ability to communicate with patients. Although one tends to think that health care has become more patient-centered in recent years, this is probably not the case everywhere. Indeed, the development of new technologies for the diagnosis and treatment of patients with cardiovascular diseases tend to push young physicians toward a disease-centered rather than a patient-oriented management of health problems. In addition, the economic environment puts pressure to shorten the time available for medical consultations leaving little room for adequate investigations of psychosocial issues. Many national initiatives in Europe and in the United States have defined the ambitious objective to control BP in >70% of adults with hypertension by the year 2020 (Europe) or 2022 (the United States). These objectives will be hard to reach if one does not develop an effective and innovative strategy to overcome the problems of noninitiation, low adherence, and early discontinuation. In my opinion, these goals will be achieved only if physicians and healthcare providers spend more time listening to their patients and their concerns.

Sources of Funding

None.

Disclosures

None.

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