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REVIEW ARTICLE

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Managing hypertension in cardiology practice according to risk profile

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SUMMARY

Cardiologists play a central role in managing hypertensive patients, although recent surveys reveal a marked discrepancy between cardiologists' appreciation of their patients' risk status and the measures taken to reduce that risk. The diagnosis and the management of hypertension, in fact, must be viewed today not in isolation, but as part of a patients' global cardiovascular (CV) risk, resulting from the concomitant presence of a variety of risk factors, organ damage (left ventricular hypertrophy, carotid or peripheral atherosclerosis, microalbuminuria or impaired glomerular filtration rate), and hypertension-related clinical conditions. The choice of timing and the intensity of antihypertensive treatment should be based on blood pressure (BP)-lowering efficacy and the propensity to favourably impact patient's individual absolute CV disease risk profile. As part of this paradigm shift in CV disease prevention strategy, cardiologists can take several key steps to help improve standards of hypertension control: (i) increase the awareness of total risk management; (ii) initiate an integrated management strategy tailored to the individual patient's global CV risk (e.g. hypertension, hypercholesterolaemia, diabetes, age, smoking and gender); (iii) use any elevation in BP as a gateway to begin total risk management and (iv) utilise combination therapies (particularly fixed-dose combinations) to achieve more rapid and persistent BP control and improve patient compliance/persistence with therapy. To help improve standards of hypertension control in the cardiology setting, this review examines the concept of treating hypertension using a global risk assessment approach and proposes effective hypertensive therapy as part of global risk management in patients typically seen in cardiology practice.

Review Criteria

A comprehensive Medline literature search was performed using the keywords cardiovascular disease, hypertension, cardiovascular risk factors, organ damage and antihypertensive therapy. Papers included in this review were manually selected based on their relevance to cardiovascular risk management in hypertension. Other references were selected on an ad hoc basis to provide support for the information provided.

Message for the Clinic

All physicians, but especially cardiologists, who play a central leadership role in managing hypertensive patients, should consider moving away from the traditional cardiovascular disease management approach in which multiple independent risk factors are individually managed. Instead, they should recognise and embrace the importance of integrated identification of all risk factors (e.g. hypertension, hypercholesterolaemia, diabetes, organ damage, age, smoking and gender) and initiate a management strategy tailored to the individual patient's global CV risk to rapidly, effectively and persistently reduce the global burden of cardiovascular diseases.

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Disclosures

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Introduction

Hypertension continues to evolve into a healthcare problem of global proportions (1,2). In 2000, approximately 972 million adults worldwide had hypertension, a statistic that is expected to increase to over 1.5 billion by the year 2025 (3). In this perspective, hypertension increases the risk of a variety of cardiovascular (CV) events, notably coronary heart disease (CHD), stroke, peripheral arterial disease (PAD) and heart failure (HF), shortens life expectancy, and represents one of the leading cause of disability-adjusted life-years (4–6). International surveys and data derived from major clinical trials on hypertension consistently demonstrated poor blood pressure (BP) control in the general populations of hypertensive patients, mostly in high-risk hypertensive patients (e.g. patients with diabetes mellitus), further contributing to poor prognosis in hypertension (7–10).

Although a central contributory role to the individual's overall CV risk (11), hypertension rarely occurs in isolation, being more often associated with other additional, modifiable risk factors (12), such as diabetes mellitus, dyslipidaemia, smoking, and obesity, and signs of hypertension-related organ damage, including left ventricular hypertrophy (LVH) (13) and microalbuminuria (MAU) (14). Thus, the diagnosis and management of hypertension should be viewed today not in isolation, but in the context of an individual's total or global CV disease (CVD) risk assessment (15). According to this approach, the choice of timing and intensity of antihypertensive treatment should be based not only on BP-lowering efficacy of a given treatment, but also on the propen-

sity to favourably impact patient's individual absolute CVD risk assessment (16,17).

The responsibility for hypertension management in the general population largely rests with primary care physicians, although rates of successful hypertension control in primary care are often disappointingly low in many countries (18–22). A recent large analysis of population and clinical surveys in Italy, involving 52,715 diagnosed hypertensive patients, for example, demonstrated the persistence of poor BP control and high prevalence of risk factors (23). In this analysis, a significant difference was observed with regard to systolic BP control, but not for diastolic BP control, in a large proportion of patients followed by cardiologists or general practitioners. In the same analysis, patients were at high or very high CV risk according to 2003 European Society of Hypertension (ESH)/European Society of Cardiology (ESC) recommendations (24), despite the fact that they were professionally managed for hypertension. Many physicians, in fact, systematically tend to underestimate CV risk in their perceptions by almost threefold compared with calculated risk (25), in part because of limited interaction with their patients (26). Even after establishing that a patient is at risk of CHD, 65% of primary care physicians spend < 15 min discussing management (22). Collectively, these findings support the need for more effective, comprehensive and urgent actions to improve the clinical management of hypertension in the primary care setting, with an emphasis on preventing hypertension-related CV and renal diseases (27–29).

In addition to primary care practitioners, cardiologists may also play a 'central' role in the clinical management of hypertension, and are well placed to offer leadership in the treatment of hypertension. Nevertheless, although cardiologists are relatively more successful at lowering BP than some other categories of practitioners (23), they also substantially tend to underestimate a patient's CV risk and fail to implement the appropriate therapeutic measures to reduce the risk of major CV events (22,25,26).

To help improve the standards of hypertension control in the cardiology setting, the present article reviews the concept of treating hypertension using a global risk assessment approach, rather than a single risk factor-based approach, by presenting the multitude of factors contributing to the global risk in hypertensive patients, and proposing the effective hypertensive therapy as part of global risk management in patients typically seen in cardiology practice.

The concept of global cardiovascular risk in patients with hypertension

In the past, the CV disease prevention has focused on modifying single risk factors, notably hypertension, dyslipidaemia and type 2 diabetes mellitus (30–32). With respect to hypertension, solid evidence exists showing that the relative risk of CV events is approximately linearly and continuously related to BP levels over the range 115/75 to 180/105 mmHg (33). According to a prospective, longitudinal analysis of a 36-year follow-up data from the Framingham Study, the presence of hypertension in both men and women contributes to an increase risk (on average, two- to threefold) of all major CV disease outcomes, including CHD, stroke, renal failure and HF (4). In this latter regard, while CHD and stroke are often considered the most frequent and dramatic consequences of high BP levels, a recent analysis of clinical trials in hypertension performed over the last decade, demonstrated a persistently high rate of HF development in hypertensive patients, particularly in elderly, black, diabetic or very high-risk individuals (34).

A key finding of these studies in the context of global risk was the observation that hypertension often clusters with glucose and lipid abnormalities as well as obesity, occurring in isolation in < 20% of patients (4,12–14,23). Thus, the concomitant presence of hypertension with one or more additional metabolic risk factors and organ damage exponentially increases absolute global CV risk to a level greater than the 'algebraic' sum of the individual components of risk (12,35–37). Results from the Framingham Heart Study also support this hypothesis on increased risk of major CV events, notably stroke, in hypertensive patients with or without various additional stroke risk factors, including age, systolic BP, use of antihypertensive therapy, diabetes mellitus, cigarette smoking, prior CV events, atrial fibrillation (AF) and LVH (38). Of interest, the highest risk of stroke occurred in patients who would likely be managed in a cardiology setting (e.g. those with prior CV events, LVH or AF). Collectively, these and other clinical studies demonstrate that today hypertensive patients require to be classified not only with respect to severity of their hypertension but mostly with respect to their global CV risk, resulting from the concomitant presence of a variety of risk factors, organ damage (LVH, carotid or PAD, MAU, or reduction in glomerular filtration rate), and hypertension-related clinical conditions (15).

Assessing global cardiovascular risk

While identification of high global CV risk is relatively straightforward in specific subsets of hyperten-

sive individuals (e.g. those with previous CV events, diabetes mellitus or severely elevated levels of individual risk factors) (11), it is less intuitive and poorly applied in the clinical practice of hypertensive patients, who are characterised by the presence of multiple, concomitant risk factors or clinical conditions, as those listed in Table 1, each of which can impact on global CV risk and long-term clinical prognosis (35–37).

The usefulness of risk assessment tools depends on several important criteria, including: (i) the inclusion of risk factors that can be easily and affordably quantified; (ii) the coverage of a wide age range in both sexes; (iii) the inclusion of ethnic-specific data (when appropriate); (iv) the prediction of well-defined CV disease events (fatal and non-fatal events); (v) the availability of validation data in the target population. Although none of the currently available risk assessment tools fulfil the above-mentioned criteria, being entirely precise and widely applicable, a number of validated methods can be used to approach the estimation of global risk, with useful educational and clinical implications (39,40).

Table 1 Summary of key factors that can potentially impact prognosis and should be used to stratify global risk

Risk factors	SBP and DBP
	Pulse pressure
	Age
	Smoking
	Dyslipidaemia
	Fasting plasma glucose
	Abnormal GTT
	Abdominal obesity
	Family history of CVD
Subclinical organ damage	LVH
	Carotid wall thickening/plaque
	Carotid-femoral pulse wave velocity
	Ankle/brachial BP index
	Increase in plasma creatinine
	Low GFR
	Microalbuminuria
Established CV or renal disease	Cerebrovascular disease (ischaemic stroke, cerebral haemorrhage, TIA)
	Heart disease (MI, angina, revascularisation, HF)
	Renal disease (diabetic nephropathy, renal impairment, proteinuria)
	PAD
	Retinopathy

SBP/DBP, systolic or diastolic blood pressure; GTT, glucose tolerance test; LVH, left ventricular hypertrophy; GFR, glomerular filtration rate; TIA, transient ischaemic attack; MI, myocardial infarction; HF, heart failure; PAD, peripheral artery disease; CVD, cardiovascular disease; BP, blood pressure. Adapted from Ref. (15).

After accumulating evidence suggested that the Framingham risk score may overestimate coronary risk in some European populations (41–43), the ESH/ESC Committee recently formulated the European Systematic COronary Risk Evaluation (SCORE) system, which allows determination of a European patient's 10-year risk of fatal CV disease (44). Using a graphically display of risk estimations in simple risk charts, SCORE allows physicians to estimate quickly a patient's total fatal CV risk. This system differs from the Framingham risk score (12) in that it considers total CV mortality (not just CV events), and provides separate charts for lower- and higher-risk areas across European countries. Using the SCORE approach (44), global CV risk can be stratified into four broad categories (low, moderate, high and very high) and is expressed as the absolute risk of having a CV event within 10 years. In a large cohort of Italian hypertensive patients (n = 37,813), global CV risk stratification according to 2003 ESH/ESC guidelines (24) revealed that almost two-thirds of patients were considered to be at moderate (33.9%) or high risk (30.2%) with a smaller proportion of patients at low (23.2%) or very high added risk (12.7%) (23).

Hypertension: a glimpse on current cardiologist's perspective

A recent 2007 internet survey provides important insights into the clinical habits, priorities, perceptions and knowledge of Italian cardiologists with regard to hypertension and stroke prevention (G. Tocci, S. Sciarretta, F. Giovannelli, A. Ferrucci, G.B. Zito, M. Volpe, Cardiology, II Faculty of Medicine, University of Rome ''La Sapienza'', Sant'Andrea Hospital; Associazioni Regionali Cardiologi Ambulatoriali, Rome; IRCCS Neuromed – Pozzilli (IS), Italy, Italian Cardiologist Survey, manuscript submitted). The survey interviewed via e-mail 900 Italian cardiologists operating in outpatient clinics in April–May 2007, of which, total of 203 cardiologists (22.5% of the sample) gave complete responses to the survey questionnaire. The interviews were co-ordinated through Regional Association of Outpatient Cardiologists (Associazioni Regionali Cardiologi Ambulatoriali, the largest Italian organisation of cardiologists operating in outpatient clinics) and involved anonymous responses to a total of 15 questions on four major areas of the clinical practice of hypertension and stroke prevention: (i) to estimate the prevalence of hypertension and perceived BP control; (ii) to achieve information on the perceived global CV risk

profile; (iii) to evaluate the extent to which hypertension-related organ damage is searched and influences the diagnostic and therapeutic strategies; (iv) to evaluate whether prevention of specific complications of high BP levels are considered of relevance for the choice of antihypertensive therapy.

According to the information provided by the Italian cardiologists surveyed, arterial hypertension was detected in the vast majority of their patients followed in outpatient clinics, most of which were considered to be at high or very high risk of CV events according to the criteria of the 2003 ESH/ESC guidelines (24). The most prevalent CV risk factor in hypertensive patients was obesity (50.9%), followed by hypercholesterolaemia (25.1%), diabetes mellitus (13.5%) and smoking (10.4%). In addition, two-thirds (61%) of cardiologists said that more than 20% of their patients had evidence of organ damage, and that more than half of them said that a percentage ranging from 5% to 15% had AF.

Despite the evidence that cardiologists were managing patients at overall high risk for CV events and, thus, needed to have their BP reduced to low levels [e.g. BP levels < 130/80 mmHg advocated by the 2007 ESH/ESC guidelines (15)], surprisingly a small proportion of cardiologists reported using combination antihypertensive regimens (34% used combination therapy as first-line strategy in 20–40% of hypertensive patients), with a clear preference in those antihypertensive drug classes that counteract the renin–angiotensin system (G. Tocci, S. Sciarretta, F. Giovannelli, A. Ferrucci, G.B. Zito, M. Volpe, Cardiology, II Faculty of Medicine, University of Rome ''La Sapienza'', Sant'Andrea Hospital; Associazioni Regionali Cardiologi Ambulatoriali, Rome; IRCCS Neuromed – Pozzilli (IS), Italy, Italian Cardiologist Survey, manuscript submitted). According to this perception, the most important major CV event that cardiologists wished to prevent by lowering BP levels was stroke (50.5%), followed by MI (20.1%), HF (17.9%) and renal disease (11.5%). Collectively, these findings indicate a marked discrepancy between cardiologists' appreciation of their patients risk status and the measures taken to reduce that risk, and highlight the need for integrated identification and management of risks factors contributing to CV risk.

Modern therapeutic options to optimally manage the hypertensive patient

Nowadays, treatment decisions with respect to the type of antihypertensive drug, the threshold and target for BP treatment, and use of single or combination therapies should be based on the assessment of global CV risk and the global risk reduction goal (rather than on the baseline value of an individual risk factor or particular BP level) (16,17). In other words, global risk should play a central role in arriving at decisions regarding whom to treat, when to treat, how to treat and how much (that is to what target level) to treat (16,17).

Antihypertensive therapy therefore represents at the same time a key priority, but also only one of effective strategies able to reduce global risk (45–47). Thus, other risk-reducing options should also be considered and integrated, including smoking cessation, lifestyle changes, low-dose aspirin and lipid-lowering therapies (48). In this view, prioritising treatment for an individual patient with multiple risk factors, organ damage and concomitant CV diseases is challenging (11). However, several factors may be useful in this regard, including nature, immediacy and magnitude of expected benefits and likelihood of compliance for physicians, availability, feasibility and costs of treatment options for physicians, competing risks from various conditions, expected interactions with other concomitant treatments, and patient and healthcare provider preferences and values.

Appropriately, targeted and 'tailored' antihypertensive therapy does represent one of the most effective methods for CV disease prevention and health maintenance, and, as such, demands a substantial commitment of healthcare resources. In light of the enormous global burden of hypertension (49), it is perhaps appropriate to consider using hypertension as a gateway to subsequent integrated measures aimed at substantially and persistently reducing global CV risk (50–52).

Five major classes of antihypertensive drug are currently available and likewise recommended for the clinical management of hypertension, including angiotensin II receptor blockers (ARBs), angiotensin-converting enzyme (ACE) inhibitors, diuretics, calcium channel blockers (CCBs) and beta-blockers (BBs), all of which can be used either as monotherapy or, more frequently, as combination therapy with two or more agents of different pharmacological classes (15). As suggested by the ESH/ESC guidelines (15) and summarised in Figure 1, the decision to choose monotherapy or combination therapy as the initial treatment for the strategy required to get BP goals should be based on the degree of elevation of BP, the global CV risk profile, and the recommended BP target for any particular patient. According to these recommendations (15), combination therapy with a two-drug combination at low doses should be reserved for high-risk patients, such as those with markedly elevated BP or with mildly elevated BP with multiple concomitant risk factors, organ

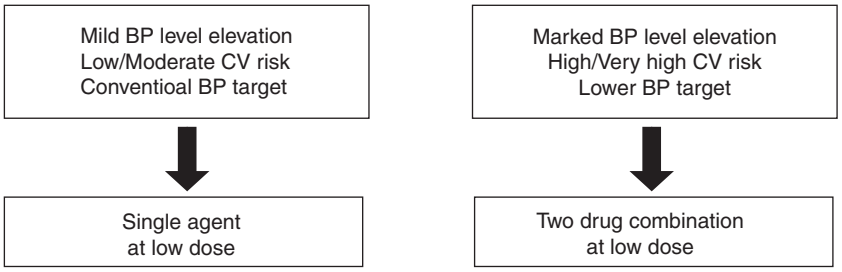

Figure 1 Choosing monotherapy or combination therapy according to degree of blood pressure elevation, CV risk and blood pressure target as a first step of antihypertensive strategy. Adapted from Ref. (15)

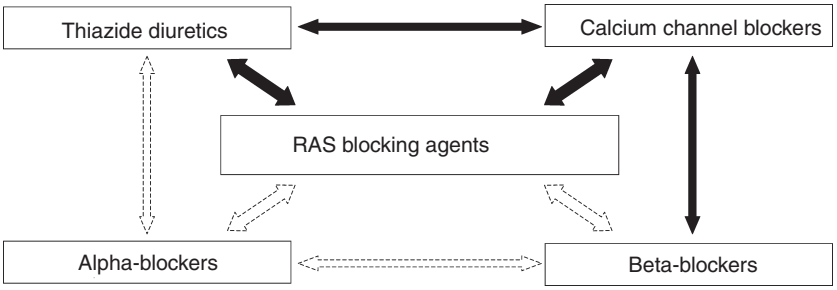

Figure 2 Possible combinations between some classes of antihypertensive drugs. In this schematic representation, the central role of renin–angiotensin system (RAS) blocking agents, mostly including angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers, is highlighted. Those combinations proven to be beneficial in controlled intervention trials in hypertensive population are represented as thick arrows. The dashed arrows indicate combinations currently not recommended for hypertension management. Adapted from Ref. (15)

damage, diabetes, renal or CV disease. Figure 2 shows possible preferred combinations among some classes of antihypertensive drugs in the general hypertensive population, according to ESH/ESC guidelines (15). Such an approach has demonstrated favourable effects in terms of better BP control, organ protection and long-term clinical outcome, but it may also impact patient's compliance to long-life antihypertensive regimen (53–60).

The question then becomes: which combination therapy should be selected? A wide variety of possible combinations of between classes of antihypertensive drugs are available (15), the most common of which include low-dose thiazide diuretic plus ACE inhibitor, ARB, BB or CCB, and other based on CCB plus ACE inhibitor or ARB, and CCB plus BB. As a general guiding principle, combinations of agents from different antihypertensive classes should be based on three important factors: complementary mechanisms of action, evidence of additive BP-lowering effects and a favourable tolerability profile (50–52). In addition, fixed-dose combinations may provide an evident additional benefit as to simplify treatment and improve patient compliance and persistence with therapy (50–52).

Evidence of outcome or strategy benefit of one therapy over another is still poor for antihypertensive agents, and the outcome benefits of most antihypertensive agents are what can be predicted from reductions in risk from BP changes *per se* (45–47). Although some clinical trials on hypertension, including Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (53), Anglo-Scandinavian Cardiac Outcomes Trial (54), Study on Cognition and Prognosis in the Elderly (55), Nordic Diltiazem study (56), Valsartan Antihypertensive Long-term Use Evaluation (57), Controlled Onset Verapamil Investigation of Cardiovascular End Points (58) and International Verapamil-Trandolapril Study (59) demonstrated treatment-related benefits for several specific outcomes, the superiority of one treatment modality is absent in the setting of equivalent BP control between study groups. In hypertensive patients with LVH, however, the Losartan Intervention For Endpoint reduction in hypertension (LIFE) study showed that for the same reduction in BP achieved by an atenolol-based regimen, a losartan-based regimen resulted in a further 25% decrease in the risk of stroke as well as risk of new onset diabetes (60). Of particular note, the antihypertensive strategy most frequently adopted was losartan 100 mg plus hydrochlorothiazide (HCTZ) 12.5 mg and approximately 56% of patients received at least one dose of the combination of losartan 100 mg plus

HCTZ 12.5 mg at some time during the study (61). A number of subanalyses of LIFE have also shown that, compared with an atenolol-based regimen, an antihypertensive therapy based on losartan has favourable effects in terms of organ damage protection and CV risk factor correction, as manifested by differential beneficial changes in MAU, LVH, left atrial diameter, AF, brain natriuretic peptide, vascular structure, serum uric acid, new-onset diabetes and lipid metabolism (62–72). Similarly, in patients with diabetes and renal insufficiency, ARBs resulted in greater benefits in improving MAU and slowing progression to end-stage renal disease (ESRD) than comparator drugs (73–77).

In summary, although evidence of superiority is lacking for most agents, some antihypertensive treatments (either as monotherapy or as combination therapy) are preferred to others in specific clinical settings, as expounded in the 2007 ESH/ESC guidelines (15). These preferred therapies are recommended on the basis of favourable clinical trial evidence of a given class in particular patients, beneficial effects on subclinical organ damage, renal disease, or diabetes, side effect profile, and potential interactions with drugs used to treat concomitant diseases (15). Ultimately, decisions on selecting an antihypertensive regimen should be based on evidence-based medicine combined with good clinical practice and personal experience of physicians (16,17).

Lowering blood pressure as part of global risk management in patients seen in cardiology practice

As a general guiding principle, the overall management strategy for any patient at risk of CV disease is to improve their global risk status by identifying all modifiable components and then initiating an effective therapeutic strategy (which may include metabolic status control, antihypertensive, lipid-lowering or anti-platelet therapies) to reduce CV risk (15). In this context, it is important to highlight the importance of addressing modifiable risk factors early before patients become severely compromised or experience a clinical event (27).

The basic elements of good treatment for hypertension, regardless of the disease setting, should take into account several key aims (78): (i) to decrease the CV risk associated with elevated BP levels; (ii) to decrease the risk from coexisting CV risk factors; (iii) to improve quality of life and encourage a healthy lifestyle (e.g. especially smoking cessation); (iv) to choose therapeutic agents likely to do more good than harm in the context of each patient's social circumstances, preferences, coexisting medical conditions, and risk factors; (v) to minimise the adverse effects and inconveniences from prescribing such therapies.

Several basic non-pharmacologic means to lower BP (as well as to improve the efficacy of pharmaco-

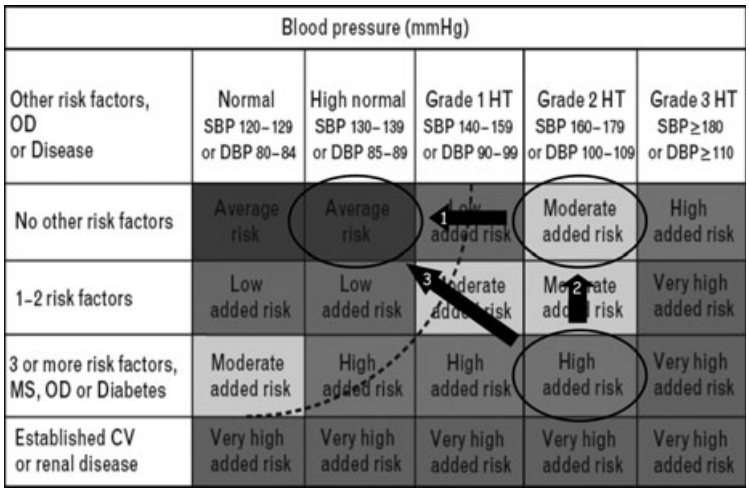

Figure 3 How to achieve cardiovascular (CV) risk reduction in hypertension. The dashed line indicates how definition of hypertension may be variable, depending on the level of total CV risk. Arrows indicate different strategies to achieve significant CV risk reduction in hypertensive patients: example strategy num. (1) Blood pressure reduction; example strategy num. (2) Intervention on associated risk factors, organ damage or diabetes mellitus; example strategy num. (3) Combination of the two strategies. SBP, systolic blood pressure; DBP, diastolic blood pressure; CV, cardiovascular; HT, hypertension; OD, subclinical organ damage, MS, metabolic syndrome. Low, moderate, high or very high risk refer to 10-year risk of a CV fatal or non-fatal event. The term added indicates that in all categories risk is greater than average. Adapted from Ref. (15)

logic BP-lowering therapy), including weight reduction, adoption of the dietary approaches to stop hypertension (DASH) diet, dietary sodium restriction, physical activity and moderation of alcohol consumption, can be useful and effective management tools and should not be neglected (79). Nevertheless, hypertensive patients with organ damage, known CV or other coexisting diseases, such as those with LVH, AF, diabetes, postmyocardial infarction, HF or nephropathy, are at particularly high risk of future clinical events and need intensive management of their hypertension and other concomitant risk factors (27).

As noted earlier, for these types of patients, the threshold to initiate BP management as well as the target BP values should be determined for individual patients based on their absolute level of CV risk. In this latter regard, it should be also note that not all antihypertensive drug treatments are equal and not all BP-lowering effect will reduce CV events; in fact, several evidence are available demonstrating that, even if BP levels are lowered, antihypertensive therapy based on BBs do not reduce CV events, when used as first-line therapy for hypertension management (80), and it is no longer recommended by National Institute for Clinical Excellence (NICE) guidelines (81).

Finally, when therapeutic goal is based on global CV risk reduction rather than on BP levels alone, two strategies can be effectively adopted, as illustrated in Figure 3, which is based on risk stratification algorithm proposed by 2007 ESH/ESC guidelines (15). In this view, a larger use of combination therapy, especially fixed combination based on a single daily administration, may provide a significant step forward in the direction of a better BP control. The ESH/ESC hypertension guidelines (15), in fact, encourage this type of approach as the initial therapy in patients at high or very high risk. This recommendation is based on the results of international, randomised, controlled clinical trials, that have consistently demonstrated that fixed-dose combination therapies with different classes of antihypertensive agents are often required in the clinical management of hypertensive patients, to achieve effective BP control (53–60,82) or significant global CV risk reduction (83), and on recent meta-analysis demonstrating that

Table 2 Important steps cardiologists can take to improve management of hypertensive patients

Increase awareness of total risk management
Initiate an integrated management strategy tailored to the individual patient's global CV risk (e.g. hypertension, hypercholesterolaemia, diabetes, organ damage, age, smoking and gender)
Use any elevation in BP as a gateway to begin total risk management
Use combination therapies to:
Achieve more rapid BP control
Decrease the risk of dose-related AEs
Simplify treatment and improve patient compliance/persistence with therapy
Improve communication of CVD risk to patients
Adopt universal treatment guidelines

CVD, cardiovascular disease; BP, blood pressure; AEs, adverse events.

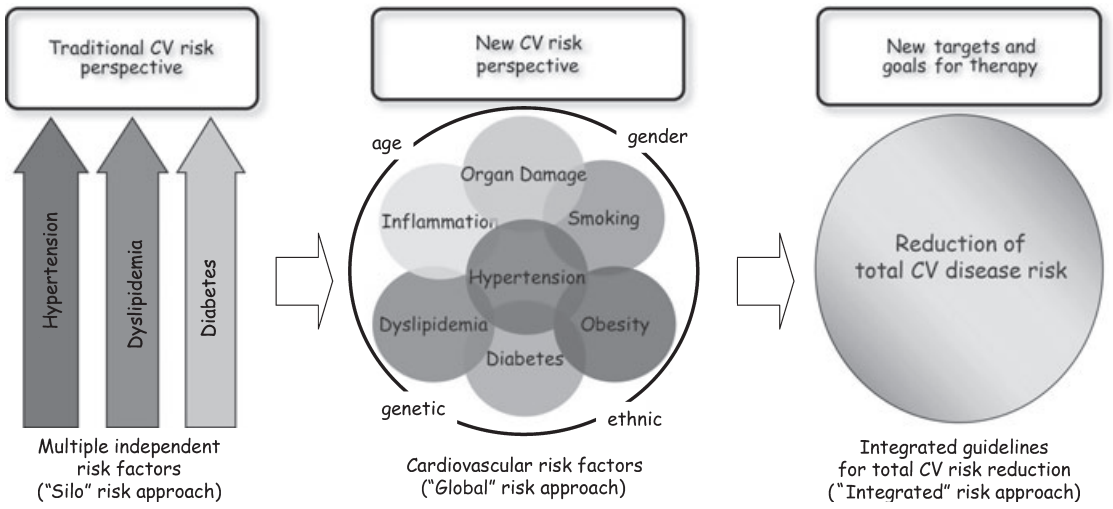

Figure 4 Change in management of cardiovascular disease (CVD) from the traditional approach of managing multiple independent risk factors ('silos' approach) to a new paradigm of integrated identification and the management of all risk factors contributing to CVD risk (global approach). Reproduced from Volpe et al. (50)

fixed-dose combinations significantly improve medication compliance in hypertensive population (84).

Conclusions

All physicians, but especially cardiologists who play a central leadership role in managing hypertensive patients, should consider moving away from the traditional CV disease management approach in which multiple independent risk factors are individually managed in a 'siloed' approach (Figure 4) (50). Instead, they should recognise and embrace the importance of integrated identification of all risk factors (e.g. hypertension, hypercholesterolaemia, diabetes, organ damage, age, smoking and sex) and initiate a management strategy tailored to the individual patient's global CV risk (50). As part of this paradigm shift in CVD prevention strategy, cardiologists can take several key steps (Table 2), including increasing the awareness of total risk management, using any elevation in BP as a gateway to begin total risk management, and utilising combination therapies (particularly fixed-dose combinations) to achieve more rapid BP control. As clearly stated in the most recent international guidelines on hypertension (15), therapeutic strategy aimed at lowering BP levels still represents today the key priority for treatment of hypertension and prevention of CV and renal consequences, even in patients with mild elevation in BP levels, but with risk factors.

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