Editor’s Corner

Predisposing factors, accompanying diseases and complications of hypertension

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Among the variety of topics that, as usual, are investigated in articles published in the *Journal of Hypertension*, a number of studies appearing in the current issue are focused on conditions that are considered, in turn, as predisposing to or accompanying hypertension or as complications of hypertension and may raise problems for the management of high blood pressure (BP).

The issue opens with a consensus document jointly prepared by Working Groups of the European Renal Association – European Dialysis and Transplant Association and of the European Society of Hypertension (Sarafidis *et al.*, pp. 657–676) offering the renal physician practical recommendations how to manage hypertension in dialysis patients, an area presenting particular difficulties, starting from the choice of which BP should be used to guide treatment (predialysis, postdialysis and home BP in the interdialytic period). In addition to renal failure, heart failure is another ominous complication of hypertension: Ravassa *et al.* (pp. 853–861) have investigated myocardial fibrosis phenotypes with distinct clinic outcome in hypertensive patients with heart failure and found that concurrence of serum markers of excessive collagen cross-linking and deposition is associated with poor outcome. Borghi *et al.* (pp. 689–695) devote a review to the relationship between hypertension, atrial fibrillation and the risk of stroke, discussing the impact of hypertension on the choice of the most appropriate anticoagulation treatment among vitamin K antagonists and the new oral anticoagulation compounds. Among conditions possibly complicating hypertension, Rim *et al.* (pp. 729–736) have retrospectively examined a very large propensity-score matched cohort from the Korean National Health Insurance Service National database and report that patients diagnosed with hypertension were more likely to experience subsequent open-angle glaucoma than the comparison group without hypertension. In an accompanying commentary, Wiley (pp. 713–714) highlights the value of linking nationwide databases of health screening with insurance claims databases to better estimate the effects of exposure to risk factors.

Conditions influencing the course of hypertension have been investigated in other studies. Lorbeer *et al.* (pp. 737–744), in the context of the KORA FF4 survey in Germany, find that liver fat content, as determined by MRI, is associated with SBP and DBP and with hypertension in patients from the general population without history of cardiovascular disease. In commenting these observations, Perseghin *et al.* (pp. 715–717) remark that although an independent pathogenic link between nonalcoholic fatty liver disease (NAFLD) and BP remains to be fully proven, the finding of a robust correlation of BP with fatty liver even within the range of normal BP emphasizes the need to put more efforts in identifying patients with NAFLD to stratify both their cardiovascular and hepatic risks.

In another study on a healthy population with a high proportion of obesity, Lambert *et al.* (pp. 745–752) find that serum uric acid is associated with alterations in metabolic profile, end-organ damage and sympathetic activity, indicating the potential value of uric acid as marker of early cardiovascular disease development. Prospectively following up a general population sample (Penn State Adult Cohort) for about 15 years, Fernandez-Mendoza *et al.* (pp. 830–836) report that the risk of mortality associated with hypertension increases in a dose–response manner as a function of shorter sleep duration and suggest that short sleep in hypertensive individuals may be a marker of central autonomic dysfunction.

A group of articles is focused on diagnostic and therapeutic decisions based on BP measurement. Because guidelines differ in their recommendations about the numbers of consecutive BP measurements to be taken or to be considered for diagnosing hypertension, Veloudi *et al.* (pp. 753–760) have re-examined data from 20716 individuals from a general population and report that using Canadian guidelines criteria leads to some reclassification from normal SBP to hypertension, whereas British guidelines criteria result in a marked reclassification from hypertension to normotension. Three articles approach the debated problem of treating or not treating individuals with white-coat hypertension. In his editorial, Myers (pp. 707–709) underlines the arguments against initiating antihypertensive treatment and adding a ‘hypertension’ label to these individuals. On the other hand, Mancia (pp. 710–712) summarizes available evidence that white-coat hypertension may be better estimate the effects of exposure to risk factors.
coat hypertension is not a clinically innocent phenomenon to be disregarded when diagnosed and supports his arguments with the results of another article in this issue of the Journal, a meta-analysis of prospective studies showing that untreated white-coat hypertensive patients had a higher risk of cardiovascular events and total mortality than normotensive individuals, whereas in treated white-coat hypertension neither the risk of cardiovascular events nor mortality was increased (Huang et al., pp. 677–688). In absence of a specific randomized study, the dilemma about treating white-coat hypertension will remain unresolved.

A number of aspects of antihypertensive treatment have been investigated in a set of other studies published in this issue. Shi et al. (pp. 696–706) have surveyed and meta-analyzed the BP effects of transcendental and nontranscendental meditation, reporting a small BP reduction with nontranscendental meditation. De Souza et al. (pp. 837–844) have observed a reduction in urinary aldosterone excretion in patients with severe obstructive sleep apnea and resistant hypertension receiving continuous positive airway pressure treatment. J.-G. Wang et al. (pp. 877–885) present the results of a randomized study comparing treatment with sacubitril–valsartan as add-on therapy to amlo dipine with amlo dipine alone, finding significantly lower ambulatory BP values in the group receiving the combination. Commenting these data in an accompanying editorial, Burnier (pp. 726–728) underlines more studies with this interesting drug combination should be conducted in specific populations of hypertensive patients, such as elderly patients or patients with diabetes. From an analysis of data from the Multi-Ethnic Study of Atherosclerosis, Tedla et al. (pp. 862–869) report a lesser progression in arterial stiffness in treated hypertensive patients with controlled BP values, but slower progression occurred only in absence of diabetes and in individuals younger than 70 years. In an editorial commenting these data, Kollias et al. (pp. 721–725) remark that reduction of arterial stiffness progression is a difficult task, and to be successful intervention is needed ‘not too late and not too little’. By examining the National Acute Stroke Israeli registry, Koton et al. (pp. 870–876) report that patients under treatment with beta-blockers, either alone or in combination, at the time of an acute ischemic stroke had the same risk of stroke severity and poor outcomes as patients treated with other drug classes. A cost-effectiveness study from China suggests that the association of nitrendipine with hydrochlorothiazide allows more reasonable and efficient allocation of limited resources than the association of nitrendipine with metoprolol (Z. Wang et al., pp. 886–892).

Ricci et al. (pp. 776–783) have examined data from the large Malmö Preventive Project, finding that hospital admissions due to syncope and orthostatic hypotension occur in about 3% of older individuals and increase with age and comorbidities. Syncope-related admissions predict higher all-cause mortality, whereas orthostatic hypotension-related admissions herald increased cardiovascular mortality. In a treated elderly hypertensive population in Australia, pet ownership was found associated with an improved cardiovascular disease survival (Chowdhury et al., pp. 769–775). In an accompanying commentary, Avolio et al. (pp. 718–720) enlarge the information to other medical conditions and ages, in which pet ownership appears to exert beneficial effects.

Different aspects of the pathophysiology of hypertension and cardiovascular disease are approached by other articles. Bai et al. (pp. 784–797) report that shear stress-induced upregulation of the GTPCH/BH4 pathway ameliorates hypertension-related decline in the endothelial repair capacity of endothelial progenitor cells; Mao et al. (pp. 798–809) publish experimental evidence favoring a crucial role of acetylated cyclophilin A in the abnormal occurrence of autophagy and subsequent pulmonary vascular angiogenesis; Mo et al. (pp. 810–821) have investigated the potential effects of fat mass and obesity protein in modulating cholesterol deposition in macrophage foam cells and found that it exerts antiatherosclerotic properties in Apo E−/− mice; McMullan et al. (pp. 822–829) have performed a randomized controlled trial to investigate the effects of vitamin D supplementation on the renin–angiotensin system (RAS) in humans, but found no effect of correcting vitamin D deficiency on RAS activity or BP; van Twist et al. (pp. 845–852) report that renal blood flow is significantly higher in fibromuscular dysplasia than in atherosclerotic renal artery stenosis; and White et al. (pp. 761–768) have used ambulatory BP monitoring to show that the melanocortin receptor agonist, bremelanotide (developed to treat female sexual dysfunction), induces small, transient increases in BP, accompanied by reduction in heart rate.

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Conflicts of interest

There are no conflicts of interest.