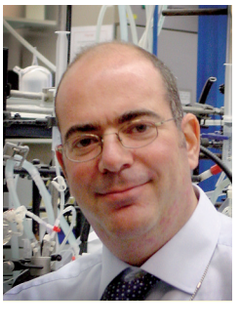
Heart Metab. 2019;79:2-3

Hypertension: what's up?



Michael Marber, MBBS, PhD, FRCP

King's College London BHF Centre of Research Excellence, Cardiovascular School of Medicine and Sciences, The Rayne Institute, St Thomas' Hospital, London, UK

Correspondence: Michael Marber, The Rayne Institute, 4th Floor Lambeth Wing, St Thomas' Hospital, 1 Westminster Bridge Road, London SE1 7EH, UK
E-mail: mike.marber@kcl.ac.uk

As we bury our heads deeper and deeper in our subspecialties, it is easy to lose sight of the fundamentals. One of these fundamentals, which has a dramatic impact on risk reduction, is the effective treatment of hypertension.

Hypertension is often likened to Cinderella; a treasure ignored, belittled, and unrecognized until highlighted by the attention of a Prince. The last year has seen such Princely attention in the form of updated ESC/ESH, and AHA/ACC, hypertension guidelines. These guidelines, which have grabbed the attention of the lay and professional press, are the focus for most of the articles in this issue of our journal.

Although much has been made of transatlantic differences in hypertension guidance, in truth they have very much in common. These threads of commonality are emphasized in this issue. Reading through the articles the key areas of focus are: (i) the blood pressure threshold at which treatments should be started and titrated to achieve; (ii) increased reliance on home and ambulatory blood pressure (BP) measurement; (iii) the emphasis on single pill combination therapy; (iv) restricting the use of β-blockers to those patients with indicative comorbidities. These points are dealt with logically and serially in this issue.

As always, it is best to start at the beginning. The article by Giuseppe Mancia addresses the issues of what level of BP merits initiation of treatment and how low to go. This an area where the US and European BP guidelines give different recommendations. In terms of starting medication, the level of hypertension is: 130/80 mm Hg in the United States and 140/90 mm Hg in Europe. As Prof Mancia points out, descriptive epidemiological studies show that cardiovascular risk starts to increase above a systolic blood pressure of 110 mm Hg. However, that does not necessarily equate to the BP threshold at which treatment will have more benefit than harm. Indeed, the surety of benefit exceeding harm only becomes convincing at untreated systolic blood pressures above 140, based on randomized controlled trials. The difficulty is that many individuals with a systolic BP of 130 to 139 exceed the conventional cardiovascular (CV) risk threshold of a 10% chance of a CV event over the next 10 years, where we become comfortable with primary prevention. The gray zone between 130 to 140 systolic and 80 to 90 diastolic is therefore one of the few areas of disagreement between the European and American guidelines. The general consensus amongst the authors in this issue is that patients in this gray zone should only be treated if they are at very high risk or there is evidence of hypertension-mediated organ damage (HMOD). Obviously, lifestyle advice can be still be given in the absence of these additional markers of risk. What about the opposite problem—younger patients with BP>140/90 but overall CV risk below the 10% risk threshold? This is the low-to-medium risk group in *Figure 3* in Prof Mancia's review (see p 8) and as he points out it is difficult to know what to do, but the temptation is

to reduce the blood pressure to preserve the future, even though the 5-year absolute risk reduction is vanishingly small.

So, we know the threshold at which to start treatment, but how do we make the diagnosis? The article by Hobbs charts the progressive move in guidelines from office to home/ambulatory measurement of BP to diagnose hypertension. The obvious advantages are the recognition of white-coat or masked hypertension, an increased number of measurements on which to assess treatment response and make treatment decisions, the recognition of nocturnal hypertension (nondippers) and the removal of biases due to rounding BP readings up or down. However, despite the move to out-of-office BP measurement, a mixed economy of measurements is still recommended, as is the calibration of home monitors. The accepted compromise is the use of out-of-office measurement to confirm the diagnosis of hypertension, before committing to what is usually a lifelong therapy. *Table III* (p 12) is also a very useful aide-memoire of the out-of-office equivalents to an in-office BP reading at the 140/90 treatment threshold.

On the basis of the articles so far we know the threshold at which to consider treatment and we know how to measure BP accurately to determine if this threshold has been breached; what do we do now? The original article by Krzysztof Narkiewicz and the refresher corner by Chris Arden deal with the interrelated issues of lifestyle intervention, choice of antihypertensive medications, and maximizing their effect by capitalizing on compliance. The lifestyle interventions that have an evidence base in prevention or treatment of hypertension are summarized in *Table II* of a recent review.[1] As Dr Arden explains, compliance requires adherence to the prescribed medication and persistence, taking the prescribed medication for the recommended duration. There is strong evidence that both these components of compliance are improved by using single-pill combination (SPC) therapies. The use of SPC formulations in the initial treatment of hypertension features strongly in both the European and American guidelines. The article by Prof Narkiewicz deals with the ideal individual components of the SPC and whether this should be with two, or three, agents; chosen from angiotensin-converting enzyme inhibitor/angiotensin receptor blocker with a calcium channel blocker and/or a diuretic (see *Figure 1* on p 17). All these combinations have a very strong evidence base and a wide variety of formulations that offer the opportunity to personalize treatment.

Whilst most patients will, hopefully, have their blood pressure controlled by an SPC formulation there are specific groups where treatments need to be better tailored. The use of β-adrenoceptor blockers and mineralocorticoid antagonists in specific hypertensive patients is also covered in the article by Prof Narkiewicz, whilst the treatment of other risk factors that cluster with, and magnify, the damage caused by hypertension is discussed in the article by Borghi et al.

All in all, this issue provides a comprehensive guide to managing the patient with hypertension. In addition, the case report by Prof Ferro details the state-of-the-art investigation of a rare case where the underlying cause of hypertension was identified. Finally, I discuss the advantages of the ultimate SPC, the polypill. In combination, I believe these articles address a critically important topic in a practical and pragmatic way. I sincerely hope they help keep the hypertension Cinderella in the limelight! ■

Disclosure/Acknowledgments: *The author has no conflict of interest to disclose.*

REFERENCES

1. Bakris G, Ali W, Parati G. ACC/AHA Versus ESC/ESH on Hypertension Guidelines: JACC Guideline Comparison. *J Am Coll Cardiol*. 2019;73:3018-3026.