European Society of Hypertension (ESH)

28th European Meeting on Hypertension and Cardiovascular Protection

8-11 June 2018, Barcelona, Spain
Introduction

Over 2,000 delegates, travelling from all over the world, from countries across Europe, the USA and Asia Pacific, attended the 2018 ESH Congress in Barcelona on 8-11 June. Abstracts were received from more than 67 countries. The meeting provided a valuable forum for the presentation of new research data, discussion and debate on new concepts, poster presentations and networking. Core topics were repeated throughout a number of the sessions of the congress and these will be discussed in this publication. One highlight for many delegates was the presentation of the new European Guidelines for the Treatment of High Blood Pressure. Following the presentation, elements of the new Guidelines, and their consequences, were referred to during sessions later during the congress. The debate and discussions will no doubt continue until and beyond when the new guidelines are officially released/published in August!

Key Points

- Incidence of hypertension could increase overnight as result of USA guidelines!
- There is a need for more accurate blood pressure (BP) measurement when treating to specific BP limits
- Hypertension treatments could be adjusted for seasonal variations, high altitude and other factors
- ABPM is a major tool in the detection of masked hypertension, with HBPM being a supplementary tool
- The prevalence of resistant hypertension has been reported to range from 5–30% of the overall hypertensive population, with figures less than 10% probably representing the true prevalence
- In the clinic setting approximately 25% of patients can be at least partially non-adherent and 10% may be completely non-adherent
- Up to two thirds of hypertensive patients have at least one comorbidity and that can lead to competing priorities for treatment
- Uric acid is a strong risk factor/marker for the development of hypertension from pre-hypertension
- Environmental causes of an increase in BP include particulate matter, the cold weather in winter, noise pollution, altitude, and other pollutants
- Salt is a nutritional pollutant
- Limit for hypertension remains as 140/90 mmHg in European Guidelines 2018!

European Society of Hypertension (ESH)
28th European Meeting on Hypertension and Cardiovascular Protection

3
Incidence of hypertension could increase overnight as a result of new guidelines!

Many sessions reminded delegates that hypertension is already considered a worldwide epidemic, with incidence increasing. Current estimates are that at least one in three adults across the world has hypertension. In high-income countries, widespread diagnosis and treatment have significantly reduced mean blood pressure across populations and this has contributed to a reduction in deaths from heart disease. In other countries however, much higher numbers (up to 50%) of adults are estimated to have high blood pressure. Most of these people remain undiagnosed and hence without the treatment which would reduce their risk of death and disability from heart disease and stroke.

Several presenters highlighted the fact that an increasing proportion of the population worldwide is living longer and another epidemic, obesity, encroaches across the world. These and other factors will lead to further increases in the incidence of hypertension without a significant advance in intervention. One presentation looked at the prevalence, treatment and associated factors of hypertension in urban and rural areas of Spain. Hypertension and lipid disorders are the most prevalent pair of conditions in Spain. An analysis of data on almost 3,000 subjects from two studies (VIVA 1997-1998 and SEGOVIA 2001-2003) evaluated hypertension control (defined as blood pressure < 140/90 mmHg). There was no difference in the prevalence of hypertension in urban versus rural areas but women in rural areas and men who were less educated tended to be less well controlled.

In addition to population lifestyles, obesity and age leading to an increase in the number of hypertensives a further increase may result as a consequence of the new limit in the definition of hypertension (130/80 mmHg) set by the ACC (American College of Cardiology) and AHA (American Heart Association) in 2017. This reduced limit effectively led to an overnight increase in patients who should be diagnosed as hypertensives in the USA. A presentation on the prevalence of hypertension in Taiwan suggested that overnight, if these Guidelines were followed, the prevalence of hypertension had increased from 31 to 48% in men and from 32 to 43% in women, as a result of the new limits.

Franz Messereli, Professor of Medicine at Mount Sinai Health Medical Center, Icahn School of Medicine in the Division of Cardiology and Visiting Professor in the Department of Cardiology, Bern University Hospital Bern, Switzerland, commented that the new limit would lead to patients being diagnosed with hypertension sooner and hence, treated earlier. However, the side-effects rather than the benefits of such treatment would be seen first. He went on to comment that a number of publications had ‘disputed’ the new USA target level and that what should be considered is the fact that one size does not fit all when diagnosing and treating hypertension, as variables such as age, lifestyle, and comorbidities should be taken into consideration.

Facing the challenges in the diagnosis, measurement and management of hypertension

Numerous presentations during the congress considered the merits and challenges of the different ways of measuring blood pressure (BP). Office/clinic blood pressure is obviously convenient but readings can be high, due to the ‘white coat’ effect, whereas home measurement can lead to inaccuracies. Obviously, ambulatory blood pressure measurement (ABPM) does provide a more accurate picture of an individual’s BP but this has some practical considerations. More than one presenter highlighted that treating to a
low BP level target, whilst relying solely on office blood pressure measurement could be dangerous, as real levels could be much lower.

Tailoring treatment for the individual patient

Also highlighted was the need to balance the benefits and burden of antihypertensive treatment. Dr Markus Schlaich, a renal physician and a European Society of Hypertension (ESH) accredited hypertension specialist with a strong background in clinical research, Head of the Dobney Hypertension Centre, Royal Perth Hospital and the University of Western Australia, discussed how the benefit in terms of avoiding negative outcomes had to be balanced against the benefits of discontinuation of treatment due to adverse events. He highlighted how the more effective that hypertension treatment is in terms of lowering BP, the better the treatment outcomes. However, in parallel to this, the adverse events might increase. His conclusion was that the approach to the management of hypertension should be tailored to the individual patients; a common theme throughout the congress.

Seasonal variation in blood pressure and effects of altitude

A number of presentations considered seasonal variation of BP and Professor George Stergiou, Associate Professor of Medicine & Hypertension at the Hypertension Center, Third University Department of Medicine, Sotiria Hospital, Athens, Greece, discussed ABPM specifically and concluded that both day and nighttime BP measured via ABPM exhibited seasonal variation, with a greater seasonal variation during the day. When asked why, he suggested that was probably due to increased activity during the day, during summer months. He had also measured vascular tone which likewise exhibited seasonal variation. He went on to suggest that in the future, it may be possible to predict which patients would have a greater seasonal variation in their BP and therefore, their medications could be adjusted accordingly. Meanwhile, Professor Gianfranco Parati, Professor of Cardiovascular Medicine, University of Milan-Bicocca and San Luca Hospital, Milan, Italy, during another session, stated that increased latitude led to greater changes in BP in the more moderate countries. He also commented that subjects did differ in their response and could be classified as ‘responders’ and ‘non-responders’ in terms of latitude. He also presented data to illustrate that an average increase in BP resulting from a 1°C temperature change was in the range of 0.15-0.21 mmHg. Unlike Stergiou, Parati did think that the method of BP measurement did have an impact on the noted effects of latitude and temperature.

Professor Grzegorz Bilo, Department of Cardiology, University of Milan-Bicocca, Milan, Italy considered the pathophysiological mechanisms involved in the changes in BP as a result of high altitude. He proposed that the drop in barometric pressure leads to a hypoxic state, triggering sympathetic activation to reduce BP. Professor Parati endorsed this and suggested that the effect was more evident on men and during the night. Parati also presented during another session and acknowledged the fact that more hypertensives were reaching higher altitudes in this current time and that those with comorbidities would be at increased risk. For instance, hypertensives with CAD (coronary artery disease) may experience more difficulty at high altitude and those with pulmonary hypertension should be very cautious.

Masked hypertension

Masked hypertension is defined as a normal BP in the clinic or office (<140/90 mmHg), but an elevated BP out of the clinic (ambulatory daytime BP or home BP>135/85 mmHg). It has a prevalence of 18-45%, being more common in the elderly and men and those of African ancestry and is strongly associated with all-cause mortality. ABPM is a major tool in the detection of masked hypertension, with HBPM (home blood pressure measurement) being a supplementary tool.
Resistant hypertension

Hypertension is defined as resistant to treatment when a therapeutic strategy that includes appropriate lifestyle measures plus a diuretic and two other antihypertensive drugs belonging to different classes at adequate doses (but not necessarily including a mineralocorticoid receptor antagonist) fails to lower systolic blood pressure (SBP) and diastolic blood pressure (DBP) values to 140 and 90 mmHg, respectively.2

Depending on the population examined and the level of medical screening, the prevalence of resistant hypertension has been reported to range from 5–30% of the overall hypertensive population, with figures less than 10% probably representing the true prevalence. Resistant hypertension is not a benign condition being associated with a high risk of cardiovascular (CV) and renal events.2 During this congress a significant number of presenters acknowledged that this group of hypertensives can present a challenge to the clinician.

One of the parallel oral sessions at this congress focussed specifically on resistant hypertension (R-HT). S.A. Gonzalez, Buenos Aires, Argentina, advised that the prevalence of resistant hypertension (R-HT) is 8-13% (this is a little less than the 2013 European Guidelines estimate of 10-20%) and 44.6% of those with R-HT were taking three or more antihypertensives. He also highlighted that those with R-HT have a greater volume intravascularly than non-hypertensives and that this effect was more marked in women.

Pseudo-resistant hypertension

Pseudo-resistant hypertension has a number of causes including:

- White coat effect
- BP measurement techniques
- Sub-optimal treatment
- Non-adherence to treatment.

During his presentation, Professor Maciej Tomaszewski, Chair in Cardiovascular Medicine, University of Manchester, UK, highlighted that miss-diagnosis of hypertension as a result of the above can be as high as 30%. He then focussed on non-adherent patients and stated that in a review of 208 patients in the clinic setting approximately 25% were at least partially non-adherent and 10% were completely non-adherent! Other presentations during the congress focussed specifically on adherence and this is covered later in this publication.

Refractory hypertension

According to Professor Andrzej Januszewicz, Institute of Cardiology, Warsaw, Poland, the term refractory hypertension was introduced in the USA and is a novel phenotype of resistant hypertension.

8-13% of hypertensives have resistant hypertension; they represent a significant clinical challenge

5 min alone in the room — SBP/DBP fall by 15.7/8.0 mmHg (n=353) for automated BP compared to regular office BP

The limit for hypertension of 140/90 mmHg according to office BP corresponded to 125/82 mmHg with automated BP

Unattended Automatic Office Blood Pressure Measurement.

European Society of Hypertension (ESH)
28th European Meeting on Hypertension and Cardiovascular Protection
Predicting the consequences of untreated hypertension

Numerous presentations during the congress focussed on the consequences of hypertension and therefore the need to treat. Dr A. Gupta, National Heart and Lung Institute, London, UK, reviewed a number of studies illustrating that a number of risk calculators have been used to estimate the 10-year risk of mortality in hypertensives. The ASCOT legacy study measured two outcomes, cardiovascular and all-cause mortality and considered numerous variables such as age, gender, socioeconomic group, elevation in SNP (single nucleotide polymorphism), increase in pulse pressure and glucose and creatinine levels. Results indicated that glucose and creatinine were significant indicators for risk when above certain levels whilst pulse pressure was a really good predictor for both outcomes and together with increasing age was an even greater predictor.

Dr A. Ruiz-Hernandez, Biomedical Research Institute Hospital Clinic of Valencia, Spain, reviewed the Hortega population-based study of over 1,000 subjects which had a primary endpoint of incidence of cardiovascular events [heart failure, CHD (coronary heart disease), stroke]. A 13-year follow-up measured the population attributable risk for mortality and cardiovascular events endpoints by hypertension. Results indicated that if hypertension was treated it would lead to 17% fewer cases of heart failure in men, whilst for coronary artery disease there would be 13% fewer cases in men and 17% fewer cases in women. Dr Ruiz-Hernandez concluded that 33% of cardiovascular events are attributable to hypertension. These data illustrate the serious consequences of not managing hypertension appropriately.

Comorbidities

Multi-morbidity was also a theme at the congress. Dr J. Tran, George Institute for Global Health, University of Oxford, Oxford, United Kingdom, told delegates that up to two-thirds of hypertensive patients have at least one comorbidity and that can lead to competing priorities for treatment. However, on a positive note, she advised that those patients with at least one comorbidity had reduced SBP; those with five or more comorbidities had a SBP of approximately 5 mmHg lower. She concluded that the lower SBP was probably due to the fact that the comorbidity had led to more contact with healthcare professionals and hence closer monitoring of their hypertension.

Obesity

During a topical workshop on position papers, Professor Vasilios Kotis, Aristotle University of Thessaloniki, Thessalonik, Greece, stated that the 10-year risk for hypertension in obese patients is doubled and that obesity is also associated with an increase in pulse pressure. Data was presented that suggested that every extra 1kg/m² can lead to an increase of atrial fibrillation by 4-5%. Obesity is also associated with more than a two-fold increase in sudden cardiac death in men and an almost six-fold increase in women. Professor Kotis suggested that adipocytes have a key role in hypertension and that long-term weight loss studies are required.

Carotid remodelling

Another topic which was discussed on a number of occasions during the congress was that of carotid remodelling. An interesting presentation by Dr Bernard Van Varik, Department of Internal Medicine, Medical Centre and Cardiovascular Research Institute Maastricht, Maastricht University, Maastricht, The Netherlands, explained how when remodelling fails to normalise stress it is known as maladaptive remodelling. Generally, hypertension is associated with increased LMT, carotid enlargement, and in advanced stages, maladaptive remodelling. Much less is known about longitudinal changes in carotid remodelling. He shared the results of a study of hypertensive in primary care and highlighted how maladaptive remodelling in hypertension is constant over time, even when BP is reduced and that arterial remodelling seems to commence before hypertension has developed.

Uric acid and arterial stiffness

Dr J. Alvarez, CIBEROBN, Health Institute Carlos III, Madrid, Spain, highlighted that uric acid is a strong risk factor/marker for the development of hypertension from pre-hypertension. However, when asked if we were close to having a clear understanding of when serum uric acid impacts on cardiovascular disease, the answer was ‘no, not yet’.
A presentation by Dr GianPaolo Reboldi, Department of Medicine, University of Perugia, Perugia, Italy, on another day at the congress, however, further considered the prognostic value of uric acid. Although it is clear that an increase in uric acid is related to an increase in BP and an adverse prognosis, we do not yet fully understand the relationship between uric acid levels and cardiovascular and other outcomes. Looking at ABPM in a database of over 5,000 subjects, he noted that patients could be divided into four quartiles in terms of their uric acid levels. His outcomes were cardiovascular events and total mortality. His results indicated that the fourth quartile of subjects had the highest risk for both cardiovascular events and mortality. Examining 5-year probabilities he presented that the fourth quartile had a 50% increased probability of cardiovascular events and an approximately 40% increased probability of mortality. He concluded that uric acid is a powerful risk marker, although the association is not linear, for both cardiovascular events and mortality and hence is of prognostic value.

**Environmental causes of hypertension**

Cardiovascular disease is the number one cause of death in the USA but it is decreasing. However, lung disease, the current third cause of death in the USA, is on the increase. A presentation explained how particulate matter, which enters the body via the lungs, leads to oxidative stress. Air pollution leads to an increase in hospital admissions, and increase of SBP of 3-6 mmHg and an increase in cardiac mortality. With an increase in environmental pollution, we can only expect to see an increase on lung diseases and consequently, an increase in the number of people with hypertension.

Other environmental causes of an increase in BP include the cold weather in winter, noise pollution, altitude (as mentioned previously) and other pollutants. Some studies have indicated that if noise pollution is kept below 40 dcb it can lead to an 18% reduction of hypertension. Conversely, noise above 60 dcb can lead to a risk increase for hypertension of 8%.

Shockingly, aircraft noise over 60 dcb can increase the risk of myocardial infarct mortality by 30% and road traffic noise over 10 dcb increases the risk of stroke by 40%.

Dr Jorge Polonia, Department of Medicine, Center for Research in Health Technologies and Services (Cintesis), Faculty of Medicine of Porto, Porto, Portugal; Unidade de Hipertensao, Hospital Pedro Hispano, ULS Matosinhos, Matosinhos, Portugal, delivered an impactful presentation highlighting salt as a ‘nutritional pollutant’. Salt intake increases BP and salt ingestion also has toxic effects. Combined, these effects can lead to stroke. Polonia presented data to suggest that every 1 g of sodium intake could increase SBP by 2.11 mmHg and DBP by 2 mmHg. He then went on to suggest that a reduction of 1 g salt intake would be more cost-effective than using antihypertensives!

Dr Wiktoria Wojciechowska, Department of Cardiology, Interventional Electrocardiology and Arterial Hypertension, Jagiellonian University Medical College, Krakow, Poland, presented on the renal handling of dietary sodium intake and its effect on left ventricular diastolic function (LVDF). She acknowledged that we all appreciate that high sodium intake is a risk factor for hypertension and that sodium load, independent of BP leads to target organ damage. However, organ damage must involve a complex mechanism but there is no doubt that sodium load plays a major role. She presented data on the intake and resorption of sodium and LVDF which highlighted that there are four distinct groups of individuals and that both SBP and DBP are related directly to both the intake and resorption of sodium. Individuals with both high sodium intake and high resorption had both elevated SBP and increased LVDF. She concluded that reducing sodium intake in that specific group of individuals would lead to less organ damage.

Some patients may be more sensitive than others to environmental pollutants and their HCPs may need to monitor them closely and adjust medications accordingly. Blood pressure is generally worse in cities and European Committees are looking at putting pressure on governments to get legislation.

Dr Dominik Müller, Delbrück Fellow at the Max-Delbrück-Centre, Berlin, Germany, received the Björn Folkow Award during the congress and he delivered a presentation on the impact of the human microbiome, in particular the intestinal microbiome, on BP. He began by stating that humans had over 1.5 kg of gut bacteria and that 50% of the human body is microbial. The human microbiome is...
not uniform across different body sites and the intestinal microbiome is not uniform through the intestines. The host interacts with the intestinal microbiome via the environment and diet and a disruption of the microbiome has a role in obesity, atherosclerosis, LBD (Lewy body dementia), NAFLD (non-alcoholic fatty liver disease) and autism. Dr Müller also highlighted that the host microbiome interacts with the immune system and suggested that hypertension may be an immune disease. Like other presenters, he then stated that we ingest too much salt and that has a negative impact on the bacteria in our intestines. He believes that it leads to a type of autoimmunity condition but ended on a positive note presenting data that suggested we can reverse the impact with the use of probiotics.

**Ignoring non-adherence to antihypertensive treatment can have consequences**

Lack of adherence to antihypertensive treatment is a major issue with estimates of 25% of patients being at least partially non-adherent. The consequences of non-adherence can be serious; Professor Athanasios Manolis, Director Cardiology Department, Asklepeion Hospital, Athens, Greece, suggested that 9.1% of all cardiovascular events that occur to hypertensives are a consequence of poor compliance. Some presenters shared their thoughts on the best means by which to determine whether patients were being adherent to treatment. Biochemical analysis is obviously accurate but it does only provide a snapshot of the situation.

When presenters considered why patients might be non-adherent, a major factor was the fact that hypertension can be asymptomatic. The prevalence of unintentional non-adherence can be quite high, predominantly occurring as a result of polypharmacy; some presenters showed data illustrating that the risk of non-adherence increases as the number of medications a patient has to take increases. On a positive note, some presenters considered the benefits of detecting non-adherence in a patient. When non-adherence is confirmed, the clinician has an explanation for the apparently resistant hypertension, no further investigations would be required and a reduction in polypharmacy can be considered along with improved communication between patients and healthcare team.

**Reducing polypharmacy; a feasible goal?**

It is widely appreciated that reducing pill burden leads to an improvement in adherence. However, when trying to manage hypertension, healthcare professionals (HCPs) often use their intuition, adjusting the different classes of drugs in combinations, to suit the individual patients, who often have co-morbidities. Providing combinations in a single pill will restrict the flexibility for adjustments by HCPs. Consequently, during the congress, any presentations on single pill combinations were met with a mixed reaction by delegates.

Initial monotherapy for hypertension has been controversial for some time as patients often remain on their initial regimen longer term, even when combinations should have been considered. With the new recommendation of initial therapy with combinations for Grade I hypertension in the 2018 European Guidelines for Hypertension (see later), the single versus multiple pill debate will become even more topical in the future.

**The 2018 European Guidelines**

This congress provided the opportunity to delegates to learn a little about the new European Guidelines for the treatment of high blood pressure, before they are officially launched. The delegates had been waiting for these revised Guidelines as the previous version was released in 2013 and the American 2017 Guidelines had proved a little controversial.

The Guidelines had been jointly developed by clinicians representing the European Society of Cardiology (ESC) and the European Society of Hypertension (ESH). The development of the guidelines was led by Professor Bryan Williams, London, UK, and Professor Giuseppe Mancia, Milan Italy, and they co-Chaired a session at this congress which shared the key elements of the revised Guidelines.

"These clinical guidelines are one of the most important in Europe because high blood pressure affects so many people, over 25% of the adult population. The focus of the guideline is to improve the treatment of high blood pressure and blood pressure control in treated patients, which at present is not as good as it should be".  
Professor Bryan Williams, University College, London
**What has changed?**

To the relief of many of the 1,000 delegates who attended the session on the new Guidelines, the definition limit for hypertension remains at 140/90 mmHg.

Many had feared that the level would be reduced to 130/80 mmHg to mirror the American Guidelines. At least it will mean that when the Guidelines are officially launched in August we will not see an overnight dramatic rise in the number of individuals who should be considered hypertensive, as was experienced with the new USA Guidelines!

Likewise, the recommendations for the definitions of hypertension according to the different measurement methods is also unchanged. The 2018 Guidelines do make recommendations for screening suggesting that in patients with an optimal BP it should be every 5 years, whereas patients with a normal BP should be screened every 3 years and those with high normal BP, every year. They also state that any diagnosis of hypertension should be based on repeated office measurements or ABPM.

For the risk-level stratification the Guidelines use a SCORE system for a formal cardiovascular risk assessment. Factors influencing the score are age, gender, smoking, etc.

The new Guidelines, as previous, state that ‘when to initiate treatment’ is dependent on the patient classification. What is new, however, is that drug treatment should be considered in high normal BP individuals if they are very high-risk patients with cardiovascular disease, especially CAD.

There are some new concepts in the 2018 Guidelines regarding less conservative treatment of high BP in older and very old individuals. The thresholds for treatment and the treatment targets have been defined more clearly and it is stated that treatment should not be withheld just on the basis of age.

As regards treatment goals there will be more guidance on the desired BP levels in relation to how BP is measured. It is suggested that a 10 mmHg reduction in SBP may have an incremental benefit. For instance, and office target of <130 mmHg in reality is closer to a real mean target of 125 mmHg and a home target of <130 mmHg.

The Guidelines will again indicate lifestyle changes in hypertensive including reduction in salt intake (<5 g per day, a reduction in alcohol consumption (see later) eating more fruit and vegetables, reducing weight (BMI 20-15; waist circumference <94 cm in men and <80 cm in women) and increasing physical activity (regular aerobic exercise). What has changed is the way in which the alcohol consumption recommendations are provided in the new Guidelines. Rather than glasses a specific number of units are proposed. (This is in light of the fact that most patients will now be familiar with units of alcohol). In men, the recommendation is less than 14 units a week, whilst in women it is only 8 units. In terms of drug treatment, the presenters acknowledged that <50% of hypertensives are controlled. What is new in the 2018 Guidelines is that combination treatment is now recognized as the most effective initial treatment strategy in most patients.

"The 2018 ESC/ESH guidelines issue new recommendations on how to optimally treat hypertension. Drug therapy extends to additional groups of patients. Also, blood pressure values to aim at with treatment are lower than in the past. In addition, combination therapy is now recognized as the most effective initial treatment strategy in most patients.”

Professor Giuseppe Mancia, University Milano-Bicocca, Milan
25 August 2018 in parallel with a corresponding presentation during the ESC Congress 2018 in Munich (August 25-29, 2018) (Table 1).

A debate on the USA versus European Guidelines

A debate session of the USA versus the European Guidelines was delivered by Dr Paul K. Whelton, New Orleans, USA, and Professor Giuseppe Mancia, Milan, Italy. Each presenter delivered a précis of the relevant Guidelines and in particular made a case for the selected limits. Professor Whelton stated that reducing BP below ‘normal’ levels actually had a benefit on CV events, stroke, etc. and that therefore, we should consider treating pre-hypertensive individuals. He did acknowledge that intervention at this level would not always mean drug therapy; lifestyle changes would be suitable for some. Professor Mancia stated at this point, however, that we do not wish to ‘medicalise’ too many ‘normal BP’ individuals too early.

At the beginning of the session, the Chairperson asked the audience if they felt that 140/90 or 130/80 was the most appropriate limit and then asked them the same question at the end. The audience was almost unanimous in endorsing a limit of 140/90 both pre- and post-presentations. The Chair suggested that this was perhaps not surprising as we were sitting in Barcelona. However, a high proportion of the delegates were not from Europe!

Despite the banter between the two presenters, they both agreed that the general principles of the Guidelines

Table 1. What is new in the 2018 European Guidelines

<table>
<thead>
<tr>
<th>Topic</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP measurement</td>
<td>Wider use of out-of-office BP measurement</td>
</tr>
<tr>
<td>Treatment in older patients</td>
<td>Less conservative treatment of the old and very old</td>
</tr>
<tr>
<td>Treatment initiation</td>
<td>Two-drug on initiation</td>
</tr>
<tr>
<td>Target levels</td>
<td>New target levels; specified for specific patient types plus lower safety levels provided</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>Stronger recommendations and lower alcohol limits</td>
</tr>
<tr>
<td>Adherence</td>
<td>More emphasis put on the need to detect poor adherence</td>
</tr>
<tr>
<td>Role of nurse and pharmacists</td>
<td>To have a key role in the longer-term management of hypertensives</td>
</tr>
<tr>
<td>Not presented at ESH 2018</td>
<td>• 20 causes</td>
</tr>
<tr>
<td></td>
<td>• Managing emergencies</td>
</tr>
<tr>
<td></td>
<td>• How to manage BP in acute stroke</td>
</tr>
<tr>
<td></td>
<td>• BP in women and pregnant women</td>
</tr>
<tr>
<td></td>
<td>• Management of hypertension in different ethnic groups</td>
</tr>
<tr>
<td></td>
<td>• Managing hypertensives at high altitude</td>
</tr>
<tr>
<td></td>
<td>• Managing patients:</td>
</tr>
<tr>
<td></td>
<td>• COPD (chronic obstructive pulmonary disease)</td>
</tr>
<tr>
<td></td>
<td>• AF (atrial fibrillation) and arrhythmias</td>
</tr>
<tr>
<td></td>
<td>• On oral anticoagulants</td>
</tr>
<tr>
<td></td>
<td>• Cancer treatment</td>
</tr>
<tr>
<td></td>
<td>• Sexual dysfunction</td>
</tr>
<tr>
<td></td>
<td>• Peri-operative</td>
</tr>
<tr>
<td></td>
<td>• Glucose lowering impact on BP</td>
</tr>
</tbody>
</table>
were similar and that the ultimate goal was the same; to manage hypertension in an optimal manner, moving forwards.

Conclusion

The ESH congress provided a forum to present data and opinions, discuss the optimal management of hypertension, debate about old and new topics and network with fellow clinicians.

References