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Abstracts: Hypertension Symposium 2004

ABBREVIATIONS Ang-I converting enzyme inhibitors (ACEI), blood pressure (BP), British Hypertension Society guidelines for hypertension management 2004 (BHS-IV), cardiovascular (CV), DIABHYCAR (DH), diastolic blood pressure (DBP), General Medical Services (GMS), general practitioner (GP), Micro-HOPE (MH), Multiple Risk Factor Intervention Trial (MRFIT), NHS Quality Improvement Scotland (NHS QIS), National Institute of Clinical Excellence (NICE), ramipril (R), Scottish Intercollegiate Guidelines Network (SIGN), systolic blood pressure (SBP)

SESSION 1

Chairman: Dr S Maxwell, Clinical Pharmacologist, University of Edinburgh, Edinburgh, Scotland

Do we really need secondary care in hypertension management?

Professor LD Ritchie, Mackenzie Professor of General Practice, University of Aberdeen, Scotland

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Abstract This talk belies its title and aims to emphasise the importance of securing effective partnerships for the future management of hypertension.

There is incontrovertible evidence that antihypertensive drug treatment decreases the risk of fatal/non-fatal cardiac events, stroke and death in both sexes with raised BP (systolic or diastolic).[1] Similarly, there is robust evidence that antihypertensive regimes are cost-effective.[2] As thresholds and targets become more exacting the volume of treatment will increase (both numbers treated and polypharmacy), putting pressure on prescribing budgets.

The importance of guidelines, targets and the quality requirements of the new GP/GMS contract are discussed – with incentives for improved care of patients with hypertension. It is likely that the detection and treatment of hypertension will improve but control may diminish with more demanding targets. Targets differ between guidelines – BHS-IV[3] is more exacting than the GMS contract requirement. The main antihypertensive drug categories produce similar BP reductions. Guidance on appropriate drugs and drug combinations are readily available, although sometimes at odds (NICE, BHS-IV).[3,4]

Nurse-led management of hypertension in primary care is increasingly common, and research has pointed to the importance of the nurse-patient therapeutic relationship.[5] Similarly, nurse-led secondary coronary prevention, including management of hypertension, has demonstrated sustained improvement with significant mortality benefits.[6] Secondary care referral pathways and advice will continue to underpin the effective management of hypertension. Other partners include SIGN, NHS QIS, Scottish Executive Health Department, and Colleges/Professional Bodies. Effective Information Management and Technology networks/electronic patient records will also be essential.

Hypertension and its management should now be firmly set in the context of global risk and prevention of cardiovascular events. For effective control of hypertension it is important to strike a balance that is desirable, affordable and achievable. Securing effective implementation requires due consideration of guidelines, lifestyle measures, drugs, nurse-led models of care, referral pathways to secondary care and effective partnerships. Central to success will be increasing engagement of patients in their own hypertension management.

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Sponsors None.

Declaration No conflict of interests declared.

How should we manage hypertension in diabetes: are the issues any different?

Professor J Cockcroft, Professor of Cardiology, Wales Heart Research Institute, University of Wales College of Medicine, Cardiff, Wales

Abstract Not available at the time of going to press.

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Salt: does it really matter in hypertension?

Professor G MacGregor, Professor of Cardiovascular Medicine, St George's Hospital, University of London, London, England

Abstract Not available at the time of going to press.

SESSION 2

Chairman: Dr P Padfield, Consultant Endocrinologist, Western General Hospital, Edinburgh, Scotland

Isolated systolic hypertension: are arterial stiffness and endothelial dysfunction the key?

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Abstract Raised systolic BP is an important risk factor for cardiovascular disease, especially in subjects more than 50 years old. Furthermore, systolic hypertension is by far the most common subtype of hypertension in middle aged and older people and thus is a very important public health problem. Although lowering systolic BP with standard antihypertensive drugs is known to reduce cardiovascular events, only a minority of subjects achieve recommended targets.[1]

Raised systolic BP is usually the result of increased stiffness of large arteries. Arterial pressure waves travel faster in stiffer arteries and this results in reflected pressure waves returning to the central aorta more quickly where they augment central systolic pressure which, in turn, increases cardiac load.[2] Accumulating evidence suggests that measuring arterial stiffness, for example as pulse wave velocity or central augmentation index, may further refine cardiovascular disease risk prediction.[3] Recent data have also suggested that the function of the endothelium may be important in the regulation of arterial stiffness.[4] In addition, it has been shown recently that it is possible to use the arterial pulse waveform measured non-invasively to assess endothelial function rapidly at the bedside or in the clinic.[5,6]

Targeting novel therapies at improving arterial stiffness and endothelial dysfunction may hold potential for the future treatment of systolic hypertension.

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Key words: Arterial stiffness, augmentation index, endothelial function, hypertension, pulse wave analysis, pulse wave velocity, systolic hypertension.

Sponsors: None.

Declaration: No conflict of interest declared.

ROBERT W PHILIP MEMORIAL LECTURE

Chairman: Professor N Douglas, President, Royal College of Physicians of Edinburgh, Edinburgh, Scotland

Hypertension update: using lessons from observational studies and clinical trials to guide patient care

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Abstract Hypertension control remains woefully inadequate in the general population despite advances in our understanding of the hazards of high BP, a growing body of evidence from clinical trials of the benefits of hypertension treatment and progress in pharmacotherapy. Elevated BP has been identified as the major predictor of cardiovascular mortality and morbidity. The relation of BP to mortality from coronary heart disease is continuous, graded and without evidence of a threshold.

Data from observational studies will be presented as evidence of the relationship of BP to risk for cardiovascular disease. Results of several clinical trials will be presented to provide evidence of the benefits of BP treatment.

Table I presents relative risks for coronary heart disease mortality associated with different levels of SBP and DBP in approximately 350,000 men screened for the MRFIT study.

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TABLE 1 The relative risks of coronary heart disease mortality as a function of levels of systolic and diastolic blood pressure in over 350,000 men screened for MRFIT.

SBP level	Relative risk	DBP level	Relative risk
<120	1·00 (reference)	<80	1·00 (reference)
120–129	1·28 (1·19–1·36)	80–84	1·21 (1·14–1·28)
130–139	1·66 (1·56–1·77)	85–89	1·48 (1·39–1·57)
140–159	2·45 (2·30–2·61)	90–99	1·84 (1·74–1·94)
160–179	3·42 (3·16–3·71)	100–109	2·56 (2·38–2·74)
180–209	5·26 (4·68–5·90)	110–119	3·45 (3·09–3·84)
210+	6·40 (4·74–8·65)	120+	5·17 (4·42–6·05)

Data from the Prospective Studies Collaboration have revealed a linear relation of BP to risk of coronary heart disease mortality (see Figure 1).

The validity of guidelines for early and aggressive management of hypertension is powerfully evidence-based. Yet today, fewer than 30% of hypertensive patients in industrialised countries have their BP lowered to the treatment goals of <140/90 mm Hg. The problem of inadequate BP control is especially great in older patients in whom the prevalence of high BP is greatest and in whom isolated systolic hypertension predominates.

Renewed educational efforts directed at the medical community and the general public are needed to correct the unacceptably low levels of BP control, and target older patients with systolic hypertension for aggressive treatment. Through such efforts we will be able to achieve further reductions in cardiovascular disease in the twenty-first century.

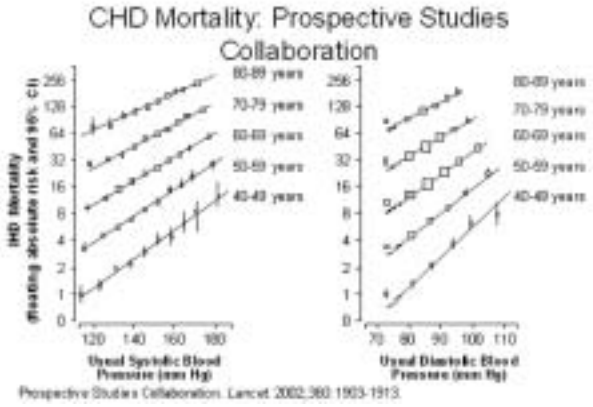

FIGURE 1 Reprinted with permission from Elsevier (*Lancet* 2002; **360:**1903–13).

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Sponsors None.

Declaration I have no ongoing consulting or speaking relationships with industry and have not engaged in any since 2003.

SESSION 3

Chairman: Dr Michael Watson, Consultant Physician, Royal Infirmary, Edinburgh, Scotland

Case studies of resistant hypertension

Professor M Brown, Professor of Clinical Pharmacology, University of Cambridge, Addenbrookes Hospital, England

Abstract Not available at the time of going to press.

Dr S Maxwell, Consultant Physician, University Edinburgh, Edinburgh, Scotland

Abstract Not available at the time of going to press.

Dr M Strachan, Consultant in Diabetes and Endocrinology, Western General Hospital, Edinburgh, Scotland

Abstract Not available at the time of going to press.

SESSION 4

Chairman: Professor D Webb, Professor of Clinical Pharmacology, University of Edinburgh, Edinburgh, Scotland

Debate: The consequences of risk assessment: we should not treat young people with hypertension. (For the motion)

Dr PL Padfield, Consultant Endocrinologist, Western General Hospital, Edinburgh, Scotland

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Abstract Although hypertension is extremely common, this is based upon data across the whole age spectrum, ranging from a prevalence of <10% in 16–24-year-olds to >70% in individuals between the ages of 65 and 74.[1] In addition, data from Framingham and other observational

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studies would indicate that for a given level of BP, young people are at significantly less risk of cardiovascular disease than older individuals.[2] The inherent variability of BP measurement also makes it difficult to be confident, in young people particularly, that even the mean of three BP readings is predictive of sustained hypertension.[3]

There is abundant evidence that the treatment of hypertension reduces cardiovascular risk but intervention studies have been performed in patients with a mean age of over 50 years.[4] The reduction in the risk of stroke is often quoted as an impressive 40% whereas the relative reduction of risk for coronary heart disease is of the order of only 16%. Given that the absolute risk of cardiovascular disease in young people with uncomplicated hypertension is likely to be <5% over ten years, the potential for risk reduction with drug therapy is minimal. Detailed analysis of expected life years to be gained following antihypertensive treatment also argue that young individuals stand to gain little from lifelong drug therapy.[5]

Despite these observations, national and international guidelines repeatedly recommend drug therapy in asymptomatic young people with elevated BP levels but without additional cardiovascular risk. Guidelines from the UK pay scant attention to the cost effectiveness of such an approach.[6] Furthermore, guidelines rarely factor in the views of patients before deciding on lifelong treatment and, when such information is taken into account, young people will rarely elect to start on lifelong therapy.[7]

There is little doubt that if treatment is begun in a young individual with raised BP current targets are likely to require combination therapy in between two-thirds and three-quarters[8] with the potential for resultant drug side-effects. The argument that withholding treatment predisposes subjects to long-term damage needs to be countered, but there is good evidence that the benefits of antihypertensive therapy for stroke reduction are complete within two to three years of treatment.[4] Annual monitoring of BP would be part of the overall medical care of such individuals and ongoing risk assessment could dictate therapy in later years.

It should also be noted that the simple labelling of individuals as hypertensive increases the likelihood of illness and absenteeism.[9] It has been shown also that the label 'hypertension' results in individuals earning significantly less than those who are labelled as 'normotensive',[10] irrespective of the use of drug therapy.

Physicians in primary care have a daunting task as they face detection and treatment of individuals at high risk of cardiovascular disease. They should not be side tracked from this endeavour by identifying, monitoring and treating young individuals who have little to gain by medical intervention.

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Sponsors None.

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Debate: The consequences of risk assessment: we should not treat young people with hypertension. (Against the motion)

Professor T MacDonald, Professor of Clinical Pharmacology, University of Dundee, Dundee, Scotland

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Abstract The relative risk reduction in cardiovascular risk achieved by lowering BP is the same irrespective of starting BP. Guidelines focus on treating patients with high absolute cardiovascular risk and since age is a major driver of this, most young people would not get treated using this approach. This ignores the fact that events in younger subjects have to be borne for longer and thus produce more cumulative morbidity.

The result of the 'absolute risk' strategy is that most events in younger subjects occur before the subject has achieved enough risk to warrant prophylactic treatment. The insurance industry takes a different view of such risks preferring an 'actuarial approach'. This approach prefers to characterise risk as either life expectance or 'event-free survival'. Such an approach places greater emphasis on rarer events in younger subjects because 'event-free years' accumulate with time.

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Since resources are limited an equitable way to distribute treatment is to treat those at highest risk in each age band. More recent guidelines such as the joint UK guidelines have recognised this argument and now calculate the risk of young people projecting their age forward to age 50. The European Society of Hypertension guidelines have gone further and have abandoned age completely, treatment being based on BP and risk factors only.

The arguments against treating younger patients with cardiovascular risk factors such as hypertension are increasingly untenable. Indeed, the American JNCVII guidelines suggest that subjects with BP as low as 120/80 mm Hg are pre-hypertensive and require nutritional hygienic treatment to prevent hypertension. The increasing availability of inexpensive generic antihypertensive agents make the wider treatment of hypertension in younger subjects both effective and cost-effective.

Key words Cardiovascular risk, hypertension, treatment.

Sponsors None

Declaration Professor MacDonald sits on advisory boards, consults, or is carrying out sponsored research for: Sankyo, Pfizer, Novartis, MSD, BMS, Lilly, GSK, Aventis, AstraZeneca, Roche and Medeus. He is also a member of the British Hypertension Society Executive Committee and he sits on the Pharmcovigilance Committee of the UK Committee on Safety of Medicines.

Dose-dependency of cardiovascular benefits induced by renin-angiotensin system inhibition: comparison of Micro-HOPE and DIABHYCAR results.

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Abstract Experimental studies have attributed to ACEI a protective effect on hypertension-induced CV and renal lesions which may be independent of BP decrease and dependent on the dosage. Micro-HOPE and DH are two randomised, double-blind, parallel group trials comparing either ramipril 10 mg (R10) or ramipril 1·25 mg (R1·25) with placebo (on top of usual treatment) for preventing cardiovascular and renal outcomes. Micro-HOPE recruited 3,577 diabetic patients with a high cardiovascular risk who were followed-up for 4·5 years. DIABHYCAR recruited 4,912 diabetic patients with persistent microalbuminuria or proteinuria who were followed-up for 4 years. R10 lowered the risk of combined primary outcome by 25% (95% CI: 12–36) whereas R1·25 did not (HR: 1·03; 95% CI: 0·89–1·80). Blood pressure decreased with R10 by -2·7/-2·6 mm Hg at two years in MH (placebo +0·6/-1·5mm Hg). By comparison to placebo, BP was lower in the R1·25 group by 2·4 /1·1 mm Hg.

The absence of beneficial CV effect of R1·25 contrasts with the beneficial effect of R10. It is not explained by a lack of biological efficacy of R1·25 (as shown by Acetyl-SDKP urinary and renin measurements) nor by a lower statistical power of the DH compared to MH study. It may be influenced by the cardiovascular risk level which was initially higher in MH than in DH. The most likely explanation is that high doses of ACEI are necessary to obtain cardiovascular benefits. It encourages further investigation of renin-inhibitors and the combination of ACE inhibitors with Ang-II antagonists .

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Key words Cardiovascular risk, diabetes, ramipril.

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