

Divergent views of hospital staff on detecting and managing hypertension

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Summary and conclusions

A questionnaire about detecting and managing hypertension was answered by 76 out of 110 (69%) doctors and 116 out of 195 (63%) qualified nurses in a large hospital. There was no general agreement on the method of taking diastolic blood pressures or on the level of hypertension requiring treatment. Most of the clinicians treated mild hypertension, although no proof exists that such treatment is beneficial.

Almost everyone questioned agreed that measuring blood pressure in all patients attending hospital is important. Agreement should be reached, however, on which phase of diastolic blood pressure should be used.

Introduction

As hypertension is common, usually symptomless, and often treatable, measuring blood pressure in all patients attending hospital would seem worth while. Heller and Rose,¹ however, found a low prevalence of measurement in hospital outpatients. We therefore investigated the attitudes of hospital doctors and nurses to measuring blood pressure in this large city-centre hospital with undergraduate and postgraduate medical teaching and a nursing school.

The small difference between diastolic blood pressure at the phase of muffling (phase IV) and the final disappearance (phase V) of sounds is unimportant in managing severe hypertension. Should the current clinical trials of treatment of mild hypertension² show, however, that drug treatment is necessary in patients with diastolic blood pressures of 90-109 mm Hg, then systematic small differences in blood pressure will become

important. The difference between diastolic blood pressures measured at the fourth and fifth phases might mean the difference between inclusion and exclusion from treatment programmes. For this reason we included in the study a question on the methods of measuring diastolic blood pressure used by the clinicians and nurses, and one asking which method they were originally taught. We also investigated the extent to which clinicians treated mild hypertension.

Methods

We sent a questionnaire to all 110 clinicians working in this hospital; we excluded pathologists and radiologists, and also casualty staff, who proved difficult to contact. Of the 45 consultants and 65 junior staff eligible, 49 were physicians (including neurologists, cardiologists, paediatricians, and clinical research fellows); 29 surgeons (including thoracic, orthopaedic, and ENT surgeons); 19 anaesthetists; and 13 obstetricians. We also sent a similar questionnaire to all 195 nursing staff who were either state registered or state enrolled and were working in the clinical departments or as tutors; nurses in administrative roles were excluded from the analysis.

The questionnaire asked the following questions. (1) Do you consider that blood pressure should be measured routinely in all hospital inpatients regardless of complaint? (2) Should blood pressure be measured routinely in all hospital outpatients regardless of complaint? (3) When measuring diastolic blood pressure do you take the reading at the point of muffling (phase IV) or the disappearance of sounds (phase V)? (4) Were you taught to use phase IV or phase V? (5) At what level of diastolic blood pressure would you begin to treat an asymptomatic 50-year-old man for hypertension? This last question was addressed to medical staff only.

Results

We received replies to the questionnaire from 76 (69.1%) doctors and 116 (62.7%) nurses. Extra efforts were made to achieve a high response rate, when necessary by personal contact and reminder. Answers came from 40 physicians (17 (100%) of the consultants and 23 (71.9%) of the juniors) and 34 surgeons and others (22 (78.6%) of the consultants and 14 (42.4%) of the juniors). Of the nurses who replied, 46 were ward sisters or charge nurses, 37 staff nurses, 23 enrolled nurses, and 10 nursing tutors.

Table I shows that 49 doctors (64.5%) and 65 nurses (56.0%) took the diastolic pressure at the point of muffling (phase IV) and only 14 doctors (18.4%) and 46 nurses (39.7%) used the point of final disappearance (phase V). Thirteen doctors (17.1%) and five

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TABLE I—Methods of measuring diastolic pressure used by doctors and nurses, and methods they were taught to use. (Phase IV = diastolic muffling; phase V = diastolic sounds disappear)

	Method used			Method taught			
	Phase IV	Phase V	Both	Phase IV	Phase V	Both	Forgotten
Physicians	27	5	8	29	6	2	3
Surgeons	8	4	4	10	3	1	2
Anaesthetists	10	4		10	3	1	
Obstetricians	4	1	1	4	1	1	
Ward sisters and charge nurses	24	20	2	21	20	2	3
Staff nurses	22	14	1	20	11	3	3
Enrolled nurses	12	10	1	13	6	3	1
Nursing tutors	7	2	1	5	2	3	
Totals	114	60	18	112	52	16	12

TABLE II—Levels of diastolic blood pressure at which clinicians said they would begin drug treatment in a 50-year-old man without symptoms. Figures are numbers (%)

Diastolic blood pressure (mm Hg):	90-94	95-99	100-104	105-109	110-114	115-119	120-124	≥125
Physicians	1 (2.7)	3 (8.1)	13 (35.1)	9 (24.3)	9 (24.3)	1 (2.7)		1 (2.7)
Others		1 (4.0)	7 (28.0)	7 (28.0)	7 (28.0)	1 (4.0)	1 (4.0)	1 (4.0)

nurses (4.3%) said that they used both phases. Nursing tutors more often favoured phase IV. The tendency for the doctors to use the fourth phase more often than the nurses did not reach statistical significance. Of the 53 doctors who were taught to use phase IV, 16 qualified before 1960. By contrast, of the 13 doctors who were taught to use phase V, 10 qualified before 1960. This tendency for older doctors to use phase V was significant ($\chi^2=9.6$; $P<0.01$). In general, staff continued to measure blood pressure using the methods they were originally taught, although 12 respondents could not remember which method this was.

All the doctors and 110 of the nurses believed that blood pressure should be measured routinely in all inpatients. Fifty-five doctors (83.3% of those answering this question) and 108 nurses (93.1%) were also in favour of measuring blood pressure in all outpatients regardless of complaint.

When the medical staff were asked at what level of diastolic pressure they would begin antihypertensive treatment in a 50-year-old man without symptoms (table II), their responses showed widely varying views on antihypertensive treatment. One respondent, an anaesthetist, expressed the view that it was unethical to treat any hypertensive patient without symptoms. Thirteen doctors who did not, in their specialty, usually treat adult patients with hypertension declined to answer this question. Among the replies of the remaining 62 respondents the levels of diastolic blood pressure quoted at which treatment would be started ranged from 90 to 130 mm Hg. Five clinicians said that they would not start treatment unless pressures were over 114 mm Hg, while five said that they would treat patients with pressures below 100 mm Hg. Furthermore, 41 clinicians (66.1% of the respondents) were treating diastolic pressures below 110 mm Hg; this is the lowest level of hypertension at which treatment has been shown to be of value. Physicians tended to treat lower levels of blood pressure than non-physicians, but there were no significant differences in views between various grades or seniority of staff within any specialty.

Discussion

Our response rate of 69.1% of doctors and 62.7% of nurses compares well with the 61% response rate to a similar questionnaire sent to general practitioners.³ Our survey, carried out in a busy general hospital, shows considerable differences in the methods of measuring blood pressure and managing hypertensive patients. There was no general consensus on which phase of diastolic pressure should be used; Hodes *et al*³ found similar differences, with 31% of general practitioners measuring diastolic pressures at phase IV and 42% at phase V. The latest recommendations of the American Heart Association⁴ are that both phases of diastolic pressure be recorded, but this survey found only 18 doctors or nurses (9.4%) who claimed to do this.

There are no theoretical reasons why the fourth phase of diastolic sounds should be used in preference to the fifth. Most studies confirm that the fifth phase more closely reflects the intra-arterial diastolic pressure^{5,6}; and the between-observer reproducibility is better with the fifth phase.⁷ The main argument in favour of the fourth phase is that turbulence sometimes occurs in the artery, even without compression, so that no fifth phase can be identified. Sometimes this effect may be abolished by reapplying the sphygmomanometer cuff, removing constricting shirt sleeves, or reducing the pressure with which the stethoscope is applied over the brachial artery. If these manoeuvres fail then the fourth diastolic phase has to be used.

In most trials of blood-pressure treatment, including the Veterans Administration⁸ and MRC² trials, and in many population studies⁹ the fifth phase has been used. By contrast, in the epidemiological studies in Framingham¹⁰ and in those of Miall¹¹ and Hamilton *et al*¹² phase IV was used. Short drew attention to the "diastolic dilemma"¹³; on the basis of the present study "diastolic anarchy" seems more appropriate.

While raised blood pressure carries an increased risk of heart attack and stroke, clinical trials have shown the benefits of antihypertensive drug treatment only in patients with diastolic pressures of 105-110 mm Hg or more.⁸ Despite lack of evidence of benefit, of which some doctors may be unaware, many clinicians treat mild hypertension. The results of the current MRC trial of mild hypertension² should settle this point. At the other extreme many clinicians appear to withhold treatment from patients with relatively severe hypertension.

Despite the low prevalence of blood-pressure measurement in hospital inpatients and outpatients^{1,14} and in general practice,¹⁵ nurses and doctors seem unanimous in thinking that blood pressure should be measured in everyone. This is the most appropriate method of detecting hypertensive patients in general practice,^{16,17} and should also be adopted for all patients attending hospital, regardless of complaint. The problem of which phase of diastolic pressure should be used will have to be solved soon. We agree with Short¹³ that the fifth phase is preferable in the large proportion of patients in whom it can be defined. This is particularly important as the main clinical treatment trials have relied on the fifth phase.^{8,2} If this recommendation were adopted, however, most of the staff questioned in this study would have to change their techniques.

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