Diagnosis and management of hypertension by physicians in the Federal Republic of Germany

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Diagnosis and management of hypertension by physicians in two large cities in the northwest of Germany were studied in 1988. Three hundred and fifteen out-of-hospital physicians (71%) responded to a mailed questionnaire. Sixty-eight per cent reported measuring blood pressure at almost each patient visit and 36% involved allied health professionals in the measurement process. Only 63% used disappearance of sound for the diastolic reading (phase V). A comparison with US data from 1987 showed that German physicians started drug therapy at higher levels of diastolic blood pressure than their American colleagues. Only 43% of the German physicians initiated antihypertensive medication at diastolic blood pressure values below 100 mmHg; this compares with 92% for US physicians. In Germany, β-blockers were clearly preferred as step-one therapy for young patients, while diuretics were prescribed for the majority of the older patients. Forty per cent reported reducing or stopping antihypertensive medication when the blood pressure was controlled.

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Introduction

Guidelines concerning the management of hypertension have existed on national [1] and international levels [2,3] for many years. Nevertheless, awareness, treatment and control of high blood pressure are unsatisfactory in many countries [4,5]. Only 60–80% of all hypertensive individuals in the Federal Republic of Germany know of their status and just one-third has controlled blood-pressure values [6].

Practising physicians play a crucial role in the detection and treatment of hypertension. It is assumed that control of hypertension can be improved if weaknesses in the physician's knowledge and attitudes can be defined and improved by targeted information [7,8]. The objective of this study is to assess the knowledge and attitudes of physicians in the Federal Republic of Germany concerning detection and management of hypertensive patients. The findings will be put into national and international perspective [9–12].

Methods

The physicians' enquiry was carried out in Bochum and Dortmund, two large cities in northwestern Germany encompassing together a population of approximately one million people. A self-administered questionnaire with 35 questions concerning knowledge and attitudes towards hypertension control and management was mailed to every general practitioner and internist in both cities. The survey lasted from January to March 1988. Non-respondents were reminded by phone calls and a maximum of two additional mailings. Seventy-one per cent (315) of all 442 eligible physicians participated in the study. No major differences in response were noted according to the physicians age or sex and speciality.

The findings will be compared chiefly with results of a 1987 survey in the USA [12]. This nationwide survey investigated a probability sample of 7668 physicians and obtained a response rate of 59%. Despite these important methodological differences, the German and Ameri-

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can surveys were similar in that they used a mailed questionnaire and closely corresponding questions.

Results

Sixty-eight per cent of the responding physicians claimed to measure the blood pressure of patients at almost every visit (Table 1). This proportion was slightly higher for hypertensive patients (70%) and new patients (72%). Thirty-six per cent integrated nurses and allied health professionals in the process of blood-pressure measurement. Only 63% reported using the disappearance of sound (phase V) for the blood pressure measurement.

Table 1. Frequency and methods of blood pressure measurement by physicians in Germany*.

	General medicine (%)	Internal medicine (%)	Physicians' age	
			< 50 years (%)	≥ 50 years (%)
Frequency				
Almost each visit	63	76	72	62
Each visit of hypertensive patient	69	71	63	80
Every new patient	69	76	66	80
Methods				
Use of Korotkoff V	60	68	58	70
Measurement by allied health professionals	33	39	42	26

*Bochum/Dortmund physician survey, 1988 (n = 315).

Table 2. Lowest levels of sustained diastolic blood pressure at which physicians in Germany* and the USA† initiated drug therapy.

Blood pressure (mmHg)	General medicine		Internal medicine		Physicians' age < 50 years		≥ 50 years	
	FRG	USA	FRG	USA	FRG	USA	FRG	USA
< 90	0	5	0	3	0	3	0	7
90–94	14	61	10	61	9	59	17	60
95–99	43	92	47	93	47	92	40	91
100–104	91	100	91	100	90	100	94	100
≥ 105	100	‡	100	‡	100	‡	100	‡

Numbers given are cumulative %. *Bochum/Dortmund physician survey, 1988 (n = 315); †US nationwide survey, 1987; ‡the National Institutes of Health publication of the 1987 survey gives only data for diastolic blood pressure ≥ 100 mmHg.

Table 2 illustrates that the level of sustained diastolic blood pressure at which physicians initiated drug therapy is considerably higher in Germany than in the USA. Only 13% of the physicians start drug therapy at levels below 95 mmHg. This compares with about 60% for the USA. Forty-three per cent of all physicians in Bochum and Dortmund would start drug therapy at levels below 100 mmHg in contrast to 92% of the US physicians.

Eighty-seven per cent of the German physicians would start drug therapy at lower values under certain conditions. Forty-eight per cent would initiate drug therapy at lower values when additional risk factors such as smoking or obesity are present, 70% would do so in the presence of end-organ damage. No clear picture emerged as to age and speciality of the physicians. While slightly more younger physicians and general practitioners started drug therapy at values below 95 mmHg, the opposite was the case for values below 100 mmHg.

Physicians in Bochum and Dortmund clearly preferred β-blockers in young patients (Table 3). Ninety-two per cent of the German physicians reported starting with this type of drug when the patient is young, while only 30% of their American peers prescribed β-blockers as step-one therapy in young patients. Sixty-five per cent of the German physicians prescribed diuretics as step-one therapy in older patients. The drug use of the American physicians tended to be more diverse. Only 33% prescribed diuretics in the USA. No major differences among German physicians were found for age or speciality.

Finally, the proportion of physicians who reduced or stopped medication when the blood pressure of patients had been controlled is similar for the Federal Republic of Germany and the USA (Table 4).

Discussion

The results of the current survey showed no major deviations from the reports of two earlier German surveys carried out in 1985 in Munich [10] and in 1986 in Stuttgart [11] with similar methodology. Considerable differences, however, were found between national guidelines for the diagnosis and management of hypertension and the actual practise of physicians in Bochum and Dortmund. Major deficiencies emerged in the detection of hypertensive patients. The German League against Hypertension (GLH) [1], like the Joint National Committee (JNC) in the USA [3], encourages measurement of blood pressure at each patient visit. This recommendation was followed by only 68% of the responding physicians. The rate was similar to that reported by others [13], but it might be improved by involving trained nurses and allied health professionals more frequently in the measurement of blood pressure [14].

Another important issue in terms of accuracy of measurement was that only 63% of the respondents in Bochum and Dortmund used Korotkoff phase V sounds to measure diastolic blood pressure. The tendency for older physicians to use phase V more often than their younger colleagues has also been found by others [15] and probably reflects the fact that older physicians did not face the phase IV–V controversy [16] when they were trained. This problem should be addressed by educational efforts in the future since the use of phase IV will lead to misclassification of patients as hypertensive [16,17]. It is en-

Table 3. Pharmaceuticals dispensed as step-one therapy for selected patients by physicians in Germany* and the USA†.

	General medicine		Internal medicine		Physicians' age			
					< 50 years		≥ 50 years	
	FRG (%)	USA (%)	FRG (%)	USA (%)	FRG (%)	USA (%)	FRG (%)	USA (%)
White male age 45 years								
Diuretic alone	1	29	2	27	2	22	1	36
β-blocker alone	92	22	93	24	92	28	91	13
ACE inhibitor alone	1	16	2	16	2	20	0	12
Calcium-channel-blocker alone	3	‡	4	‡	2	‡	4	‡
Others	3	32	0	33	2	30	4	39
White male age 65 years								
Diuretic alone	70	33	58	30	67	31	62	27
β-blocker alone	1	10	1	9	0	11	3	7
ACE inhibitor alone	2	16	3	5	2	9	3	5
Calcium-channel-blocker alone	21	‡	31	‡	27	‡	21	‡
Others	6	41	7	56	4	49	11	61

*Bochum/Dortmund physician survey, 1988 (n = 315); †US nationwide survey, 1987; ‡the National Institutes of Health publication of the 1987 survey gives no data for calcium-channel-blockers alone. ACE, angiotensin converting enzyme.

Table 4. Reduction and cessation of antihypertensive medication when the blood pressure of patients has been controlled by physicians in Germany* and the USA†.

	General medicine		Internal medicine		Physicians' age			
					< 50 years		≥ 50 years	
	FRG (%)	USA (%)	FRG (%)	USA (%)	FRG (%)	USA (%)	FRG (%)	USA (%)
Reduce dosage when blood pressure is controlled	41	48	44	46	31	42	57	46
Stop medication, continue to monitor blood pressure	2	0	3	1	2	1	3	0

*Bochum/Dortmund physician survey, 1988 (n = 315); †US nationwide survey, 1987.

couraging that those who had heard about the GLH were following the national guidelines more closely than those who had not taken notice of the GLH.

Data concerning the management of hypertensive patients were compared with results from the 1987 nationwide survey of physicians in the USA. The comparisons must be interpreted with caution since the difficulties of comparing two studies that differ in time, place and population must be taken into account. Nevertheless, the data provide some interesting information concerning differences between the two countries.

Physicians in northwestern Germany, like their colleagues in Munich and Stuttgart, initiated drug therapy at higher blood-pressure values than their American peers. While 61% of the American physicians would start drug therapy at sustained diastolic blood pressure values below 95 mmHg, only 14% of the German physicians would do so. Forty-five per cent of the physicians in Bochum and Dortmund would initiate drug therapy at diastolic blood pressure values below 100 mmHg. Obviously German physicians still consider the recommendation of the GLH to start drug therapy at diastolic blood pressure values above 95 mmHg as controversial.

Apparently more widely accepted were the recommendations of the GLH for the type of pharmaceuticals dispensed as step-one therapy for different age groups. The physicians in Bochum and Dortmund clearly preferred β-blockers in young patients and diuretics in older patients. The guidelines of the GLH recommend diuretics and calcium-channel-blockers in older patients but did not give preference to specific drugs in young patients [1,18]. The prescription of β-blockers to young patients has been recommended by some clinicians [19] and is based on the pathophysiological concept that hypertension in these patients is chiefly caused by high cardiac output.

A striking difference between the two countries concerned the frequency of angiotensin converting enzyme (ACE) inhibitor and calcium-channel-blocker prescriptions. German physicians seemed to prefer Ca-channel-blockers while Americans gave preference to ACE inhibitors. Results from a pharmacoepidemiological survey

in southern Germany corroborate these findings [20]. Physicians in northwestern Germany were similar to their American colleagues with regard to reducing or stopping of antihypertensive medication when blood pressure control had been achieved.

The results of this study show major differences in diagnosis and management of hypertension between German and American physicians. In general, German physicians take a more conservative standpoint. Continuing efforts are needed to improve the quality of physicians' diagnoses and management of hypertensive patients in the Federal Republic of Germany.

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