

The value of a remedy for hypertension has to be judged by (1) its control of the blood pressure, (2) the relief from symptoms, (3) the prevention of complications, and (4) the consequent improvement in survival time. These criteria have been discussed in the light of the results obtained.

The indications for treatment by hexamethonium bromide are as follows: sustained essential hypertension with a diastolic pressure at 130 mm. Hg or more; patients aged up to 55 or 60; progressive increase in blood pressure; threatening left ventricular failure due to hypertension; severe symptoms, notably headache and incapacity for work; threatened change from benign to malignant hypertension.

Contraindications were: blood pressure lower than the critical diastolic level mentioned above; age of 60 or over; evidence of more than slight impairment of renal function; evidence of more than slight cerebral or coronary disorder. While a reduction of pressure might be undesirable in these two groups, it must be remembered that continuing high pressure may equally, and perhaps earlier, bring serious hazards.

The practical application of these methods of selection and of treatment have been described with particular reference to treatment at home and at work.

For a substance to be accepted as a useful remedy for a disease so widespread and protracted as hypertension it must be available for use and control by the general practitioner. After the initiation of treatment the most important share in the control and management must be in his hands.

The possibilities, methods, and effects of oral therapy have been discussed.

While hexamethonium is not an ideal treatment for hypertension it is at present the most effective means of controlling high blood pressure. The risks of continuing high pressure far outweigh the possible danger from sudden fall of pressure.

For much assistance in the follow-up clinic we are indebted to Miss Anne Smith, technician in the cardiac department. We thank also Sisters V. M. James, L. Jones, J. Ronaldson, and E. Aprile for the vital and skilful part they have taken in the observations in the wards.

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THE MEDICAL TREATMENT OF HYPERTENSION*

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The survey by Master *et al.* in 1943 showed that 30 to 40% of subjects over 40 years of age, and 65 to 75% of those over 70, have hypertension. It is well recognized that the prognosis is good in the majority of cases, but in many instances hypertension is followed by an increasing degree of disability which merits active therapy. The fact that hypertension, in itself, is often compatible with a normal life expectation tends to obscure its high mortality in those who develop symptoms. In his study of one thousand patients, Bechgaard (1946) found that 41% of males and 22.4% of females died within five to ten years of the onset of symptoms.

It is essential to have an acceptable definition of hypertension. Wood (1950) has defined the limits of normal blood pressure as 145/90 mm. of mercury, stating the precautions necessary in recording this. Systolic hypertension in the young is usually a response to emotion and exercise; in older subjects it is an indication of loss of elasticity of major arteries, and there are other causes. In essential hypertension it is the increase in the diastolic blood pressure which is significant, and this is the pressure to which reference is made subsequently in this review. In our survey we have examined patients presenting with a diastolic pressure of 100 mm. and over. Four years ago a new drug, hexamethonium, was placed at our disposal, and for the first time we had a reasonably certain method of reducing the level of the diastolic pressure to an extent greater than with general methods of treatment. It is therefore opportune to review our experience with hypertension over these four years, having particular regard to its treatment.

It is of interest to attempt to correlate the manifestations of hypertension in man with experimentally induced hypertension. Page (1949) has comprehensively reviewed the methods of production of hypertension in animals. The types of greatest interest in relation to the pathogenesis of hypertension in man are the hypertension which follows renal ischaemia and that resulting from administration of D.C.A. (deoxycortone acetate). The renal ischaemia experiments are based upon the work of Goldblatt *et al.* (1934), and implicate a humeral pressor mechanism. Wilson (1953) has examined the renal factors. It is possible that the mechanism of renal ischaemia, with its vicious circle of hypertension and further renal damage, operates in malignant hypertension.

In studying the basophil adenomata of the pituitary. Cushing (1932) recorded observations which have been followed by the implication of pituitary and adrenal factors. Merrill (1952) has been concerned with the adrenal mechanism, suggesting a psychic origin of stress

*Read in the Section of Medicine at the Annual Meeting of the British Medical Association, Glasgow, 1954.

and anxiety, with resulting excess of steroids. His hypothesis is illustrated in Table I. Wolfert *et al.* (1951) believe that the adrenal cortex is more fundamental in the maintenance of hypertension than the sym-

TABLE I.—Psychomotor Mechanism of Hypertension (after Merrill)

Psychic stimuli	Adrenal cortical hormones Adrenal medullary hormones	Renal tubule handling of Na. Relation to renal pressor mechanism. Direct pressor effect.
		Increased cardiac output. Direct vasopressor effect. Relation to cortical hormone.

pathetic nervous system. Studies upon the experimental production of hypertension will elucidate the basic aetiology of the disease, but experimentally induced hypertension in animals fails in many respects to parallel the disease in man.

Incidence of Hypertension

Medical Out-patients

During the four-year period 1950-3 4,872 persons were examined for the first time in the out-patient dispensaries of the Royal Alexandra Infirmary, Paisley. Of these, 841 were found to have a diastolic blood pressure of 100 mm. or over, with minimal to severe symptoms and signs of hypertension. There are several methods of ascertaining the severity of hypertension. The commonly used classification is the four groups described by Keith *et al.* (1938). It suffers from the limitation of being based upon the retinal changes. For the purposes of this survey it was decided to classify the patients according to the degree to which they were incapacitated by hypertension, not taking into account the

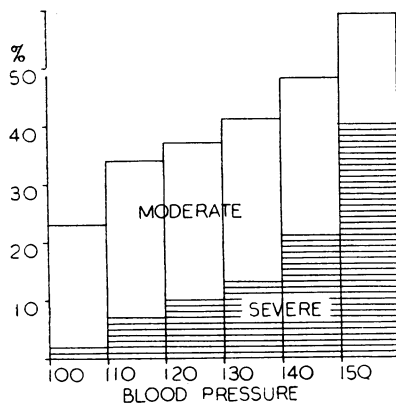


FIG. 1.—Percentage incidence of moderate and severe incapacity due to hypertension in decades of diastolic blood pressure.

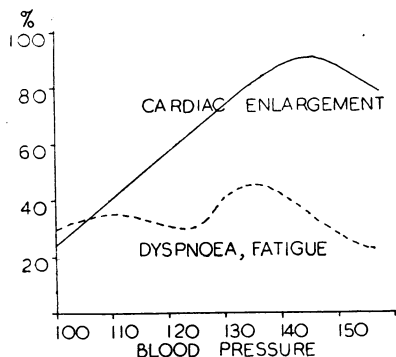


FIG. 2.—Relationship of the percentage incidence of dyspnoea and fatigue, and cardiac enlargement, to the diastolic blood pressure.

level of the blood pressure. This grouping parallels the one proposed by the New York Heart Association for the classification of disability due to lesions of the heart. Upon a clinical assessment, our patients were graded as follows: — *minimal*: those having no symptoms referable to their hypertension, or symptoms such as headache which produced no incapacity; *slight*: those presenting with slight dyspnoea on exertion and a tendency to early fatigue; *moderate*: those whose activity was definitely restricted by fatigue and breathlessness on exertion; and *severe*: those with severe incapacity due to hypertensive cardiovascular changes.

Fig. 1 shows the progressive incidence of severe

incapacity in each decade of diastolic blood-pressure elevation. However, the marked variation in individual response to hypertension is shown by the relatively constant incidence of moderate incapacity, which is paralleled by the frequency of slight and even minimal disability. The number of patients seen who had hypertension increased with age, the maximum being at 55 years, with attenuation thereafter by death. In Fig. 2 the percentage incidence of cardiac enlargement and of the symptoms, dyspnoea and fatigue, has been related to the diastolic pressure, and it will be seen that the incidence of these symptoms bears no definite relationship to the degree of hypertension present, while the incidence of cardiac enlargement demonstrated radiologically increases with the hypertension. Severe incapacity is found with an increasing frequency corresponding to the elevation of diastolic pressure, and it is accompanied by an increasing incidence of cardiac enlargement. The incidence of dyspnoea and fatigue is not related to the degree of the hypertension.

Medical In-patients

There were 5,794 patients admitted for treatment during this period: of these, 564 (190 males and 374 females) were admitted on account of hypertension, their distribution in grades of incapacity being as follows:

Grade of Incapacity	Males	Females
Minimal	10%	10%
Slight	27%	33%
Moderate	45%	42%
Severe	18%	15%

The percentage incidence of the presenting symptoms and signs is shown in Table II. Dyspnoea and fatigue are the commonest symptoms, and the figures are similar to those for cardiac enlargement. In accordance with the experience

TABLE II.—Percentage Incidence of Symptoms and Signs in Patients Admitted for Treatment of Hypertension

Symptoms:	Males	Females
Dyspnoea and fatigue	71%	81%
Headache	30%	51%
Chest pain	12%	13%
Signs:		
Cardiac enlargement	73%	82%
Cerebral accidents	18%	27%
Congestive failure	24%	17%
E.C.G. left ventricular preponderance	54%	58%
Fundi, grade II and III	87%	83%

of Frant and Groen (1950), cerebral accidents were commoner in the female (27%) than in the male (18%), while congestive failure was commoner in the male (24%) than in the female (17%). Obesity was found in equal numbers of males and females under the age of 40; it was twice as common in females aged 40-50, and three times as common in the over-50 group. Information was obtained upon the progress of 77% of patients following discharge: 47% of males died at an average of 19 months after leaving hospital and 35% of females died at an average of 23 months; cerebral vascular accidents accounted for 30% of female deaths and 19% of male deaths; heart failure was more common in males (44%) than in females (35%); renal failure occurred in 13% of the males and 14% of the females. Of the patients admitted for treatment for hypertension, 179 were treated by ganglion-blocking agents, comprising hexamethonium and drugs of this type.

Methods of Treatment

The methods of treatment of hypertension should be related to what is known of the aetiology and the experimental production of this disease. It is essential to give consideration to the prognosis in untreated hypertension. This has been reviewed in the *Lancet* (1953). Leishman (1953) has suggested subdivision of non-malignant hypertension into a benign form and an accelerated form, in which deterioration is slower than occurs in malignant hypertension. The rate at which the blood pressure rises is regarded by McMichael (1952) as being more significant than the height of the blood pressure. Our clinical experience suggests that the development of symptoms and signs appears to be mainly due to the ability, or otherwise, of the individual patient's cardiovascular system to sustain the load of

the hypertension. High levels of diastolic pressure are compatible with slight or even minimal incapacity in the individual. In essential hypertension it is probable that elevation of the diastolic pressure is compatible with a reasonable prognosis, except when signs and symptoms of heart failure appear. Headache, as Stewart (1953) has found, is a symptom which is probably unrelated to the severity of the hypertension. Renal involvement and cerebral vascular disasters occur, as a rule, late in the disease, and are not amenable to other than palliative treatment.

While the onset of heart failure constitutes a cardinal indication of the need for active therapy, the factors leading to the hypertension itself require study. A rise in the systolic pressure, accompanied by moderate elevation of the diastolic pressure of the order of 10 to 20 mm., tends to occur as the arteries harden with age. To some extent this finding has biased observations upon the prognosis of hypertension. The studies which have been performed are of relatively short duration, and systematic observation over a long period is required. Acceptance as physiological of an increasing diastolic blood pressure with advancing age is probably unjustified, in that Kean and Hammill (1949) have shown that among primitive peoples this does not occur, hypertension being associated with stresses encountered in civilized life.

Mental and Physical Stress

Graham (1945) has noted that, under the stress of prolonged periods of desert warfare, transient rises of pressure occurred, and Gavey (1954) has suggested that, under conditions of long-continued stress, the hypertension may become fixed. Wolf *et al.* (1948) and Gressel *et al.* (1949) have indicated that hypertensive vascular disease may be associated with obsessive compulsive traits and subnormal assertiveness, leading to an attitude of restrained aggression to the threats and challenges of everyday life, the vascular component of which comprises an elevation in the blood pressure and renal vasoconstriction. The study by Platt (1947) has confirmed that there is a marked hereditary predisposition.

Implication of a stress mechanism is strongly suggestive of a close parallel with the D.C.A.-induced hypertension in the animal, and with the hypertension of Cushing's syndrome. In recent years this has led to attempts to control hypertension by adrenalectomy. The results of this operation have been unsatisfying, and it is often combined with subtotal sympathectomy. Bowers (1954) has suggested that subtotal adrenalectomy should be restricted to malignant hypertension which cannot be controlled by medical therapy, chronic hypertension with marked organic changes, and Cushing's syndrome. Jeffers *et al.* (1953) performed a total or subtotal adrenalectomy with a modified Adson type of sympathectomy in 99 patients with severe hypertension. In 23% the response was excellent; in a further 23% a fair response was obtained; the response was poor in 30%; and 24% died post-operatively. The indications for adrenalectomy are therefore limited.

Dietary Restrictions

A less active approach on the adrenal mechanism is made by restriction of dietary sodium intake, and to this the Kempner (1948) rice-fruit-sugar diet owed part of its success. Schroeder *et al.* (1949) have concluded that the rice diet itself is of questionable value, but it is low in protein and very low in salt content; furthermore, it had a strong psychotherapeutic influence. The value of a diet containing sodium chloride in low daily intake of 0.5 to 2 g. is demonstrable, and its combination with a low-calorie intake is desirable. Martin (1952) has shown that reduction in obesity does not produce a significant fall in the diastolic pressure, but Fishberg (1937) has stated that reduction in dietary intake is followed after a week or two by a fall in the basal metabolic rate, and maintenance of this at a lower level reduces the load upon the heart to an extent which permits of an adequate control of the signs and symptoms of many patients with moderate elevation of the diastolic pressure. The milk

diet introduced by Karell (1866) is initially very useful, and after a period of 72 to 96 hours this can be followed by an 800-calorie diet, the sodium content of which should be under 2 g. Reducing diets of this type are specially indicated in the obese, and they are of value in all cases of hypertensive heart failure.

Relief of stress is an important part of treatment, but in many cases it may be impractical to prescribe an alteration in the patient's activities or environment. Where hypertensive incapacity is severe, bed rest is essential. It is necessary to relieve any degree of anxiety from which the patient may suffer, and sedation will depress the psychic stimuli which Merrill (1952) has indicated. In out-patients phenobarbitone in dosage of up to 1 gr. (65 mg.) thrice daily can be prescribed, and for in-patients we have used sodium amyltal in dosage of up to 3 gr. (0.2 g.) thrice daily.

A further factor of potential importance in the treatment of hypertension is the occasional occurrence of primary renal disease, due to chronic infection or to renal anomaly. Unilateral renal disease has not been encountered during our survey, and although Pickering and Heptinstall (1953) have recorded successful results following nephrectomy, Smith (1948) has concluded that nephrectomy should be restricted to the relief of definite unilateral renal disease amenable to operation, and not performed with hypertension as the indication. In advanced hypertension nephrectomy may actually shorten life by reducing still further the remaining functional renal tissue.

In summary, the general measures of treatment consist in relief of stress due to anxiety and environment, using sedation to assist in this, and treatment of heart failure by rest and restricted-sodium, low-calorie diets.

Reduction in the Level of Blood Pressure

The general methods of treatment are directed to modification of the circumstances which have occasioned the hypertension and reduction of the load placed upon the heart. In that the cardiovascular changes are due to the elevated blood pressure, there is an obvious necessity to use the means at our disposal to lower this. White (1947) lists many of the preparations previously used.

Synthetic Ganglion-blocking Agents.—(a) *Hexamethonium*: During a search for synthetic curarizing agents, Paton and Zaimis (1949) found that the sixth member of the methonium series of compounds (hexamethonium) possessed a marked and selective action in blocking the ganglionic synapse of the autonomic nervous system, and Arnold and Rosenheim (1949) demonstrated that the relaxation of sympathetic tone which is produced by this drug in man is followed by arteriolar dilatation, with reduction in the peripheral resistance. This occasions a pronounced fall in the blood pressure in both normotensive and hypertensive patients. Hexamethonium has been used extensively to decrease the blood pressure of patients with signs and symptoms of hypertension, and the results of treatment have been reviewed by Campbell *et al.* (1952), by Shaw (1952), and by many others. (b) *Pentolinium tartrate* (pentapyrrolidinium; "ansolysen"); Maxwell and Campbell (1953) have described a search for improved synthetic drugs, which resulted in the selection of a homologue of hexamethonium, pentolinium, as offering some advantages over hexamethonium. Smirk (1953a) has confirmed these findings.

Hexamethonium, its homologues, and compounds of this type are characterized by their ability to produce an immediate and usually marked fall in the blood pressure, the extent of which is dependent upon the dosage used and the individual degree of susceptibility of the patient. Side-effects occasioned by unselective ganglionic blockage are to be expected, and consist in constipation, dryness of the mouth, and blurring of vision. Tolerance develops quickly, so that dosage has to be increased to a maintenance level. The degree of control of the blood pressure attained varies from patient to patient, and oral dosage is useful in a proportion of patients only, since absorption from the gut tends to be variable.

Hydralazine ("Apresoline").—This drug is said to have a central action upon the hypothalamus, and produces peripheral vasodilatation by a partial blocking action of adrenaline and noradrenaline. Its action has been studied by Schroeder (1952a), Hafkenschiel and Lindauer (1953), and others. The action of hydralazine is slower than that of hexamethonium, and, as its sites of action are different from those of the latter drug, combination of the two has been found to be of value. As has been reported by Schroeder (1952a) the side-actions are tachycardia, headache, vertigo, and nausea and vomiting. They tend to disappear as treatment is continued. In our limited experience we have not been impressed by the activity of hydralazine in comparison with that of hexamethonium, and have not therefore used this drug in treatment.

Veratrum Alkaloids.—The alkaloids of *Veratrum viride* produce a fall in the blood pressure which is probably due to a central action, and is accompanied by a bradycardia due to stimulation of the peripheral vagal nerve endings. Wilkins *et al.* (1949) and others have used this drug in the treatment of hypertension. It is available in this country as "veriloid." Mills and Moyer (1952) have found that the hypotensive dose closely approximates to the toxic dose which produces vomiting. They noted that this prevents effective use in the treatment of hypertension, and they prefer hexamethonium.

Hydrogenated Alkaloids of Ergot.—In contrast to the natural alkaloids of ergot, which cause contraction of smooth musculature and vasoconstriction, certain dihydrogenated alkaloids occasion peripheral vasodilatation and block adrenergic stimuli. This has been described by Rothlin and Cerletti (1949). They are available in this country as "hydergine." The action of these alkaloids in the control of hypertension described in the literature is unpromising, and limited personal experience has tended to confirm this.

Rauwolfia serpentina.—An alkaloid was extracted from this tropical shrub by Müller *et al.* (1952). Its action is said to be central, and it tends to produce a subjective improvement. The effect on the blood pressure is minimal, but it is free from side-actions. It is possible that it may be useful as an adjuvant to more active forms of therapy. The pure alkaloid is available as reserpine ("serpasil"). It is combined with veratrum alkaloids in the preparation of "rauwidoid." It is probable that it will be used in combination with hexamethonium. Wilkins *et al.* (1954) have reported favourably on this drug.

Indications for Treatment

Group I.—In view of the favourable prognosis in asymptomatic benign hypertension, no active treatment appeared to be indicated in most of those patients. A few patients presented with pressures over 120 mm. (below the age of 40) and over 140, and lowering of such pressure levels was attempted, together with close observation.

Group II.—Slight breathlessness on exertion and a tendency to early fatigue responded well to reassurance and sedation, with some restriction of activity.

Groups III and IV.—Moderate and severe incapacity required active treatment in hospital with the general measures outlined earlier. Of the patients in these groups, 149 were treated, in addition, with methonium compounds. The total of 179 patients treated with methonium compounds includes those in the first group and 14 cases of malignant hypertension noted subsequently.

There were two indications for the use of methonium compounds: (1) The presence of moderate or severe incapacity, and failure of the pressure to fall below 100 mm. within a fortnight or more in response to general measures of treatment. The range of initial pressure levels varied widely in the groups, as hypertension tends to be reduced when failure occurs. In the moderate cases the pressure was often labile, responding well to rest and sedation during the first admission, but within months or years the hypertension became fixed, so that subsequently methoniums became indicated.

(2) High levels of pressure, usually in excess of 140 mm., accompanied by acute complications such as blindness, encephalopathy, and heart failure, constituted an indication for immediate dosage with methonium compounds.

Response to Treatment

Severe symptoms and signs of hypertension were improved by reduction in the blood pressure, and we have analysed the results obtained with methonium therapy (Campbell *et al.*, 1952). Similar results have been recorded by many others. While it is possible to effect reduction to normal pressure levels in almost every in-patient, subsequent observation generally shows a rise of pressure approaching the untreated level. However, it has often been observed that a fall occurs if the patient is again admitted or is adequately rested. *Methonium therapy tends to restore the lability of diastolic pressure.*

In 60% of the patients intermittent oral dosage with hexamethonium bitartrate in amounts totalling 0.75 to 2 g. of cation a day has been adequate to control signs and symptoms; a further proportion have required parenteral injection of this drug in quantities of up to 300 mg. of cation total a day. In common with Smirk (1954), we have not been able to ascertain whether treatment has extended the life expectation, but restoration to activity approaching normal has often been achieved during the period of survival. Pentolinium has provided a more certain method of lowering the blood pressure. A total dosage of up to 150 mg. of cation parenterally has been applied, and 1,000 mg. orally in some cases. The retard preparation described by Smirk (1953b) has been found valuable in reducing the number of injections necessary to one or two a day. During treatment with hexamethonium wide variations in pressure are often recorded, with fluctuations due to emotion. The pressure levels during pentolinium therapy are more stable. This is probably due to the greater effect of this drug upon the sympathetic nervous system than upon the parasympathetic. Pentolinium has proved much more certain in action, and in no case has a significant fall in blood pressure failed to occur following adequate dosage.

Malignant Hypertension

Fourteen patients presented with malignant hypertension: in seven there were no signs or history of previous hypertension; the others had hypertension of long standing which had entered into a malignant phase.

Malignant Hypertension of Recent Origin.—Three patients had chronic nephritis, and when first observed had gross impairment of renal function, with uraemia. Four patients had no previous history of renal disease, renal function was good, and blood urea was low during initial investigation, suggesting a diagnosis of primary malignant hypertension. Impairment of vision was a frequent symptom. Examination of the fundi showed fresh haemorrhages, and woolly exudates with frank papilloedema. No cardiac enlargement was present. The average diastolic pressure level was 140 mm. The duration of life was greater in those with chronic nephritis, extending from twelve days to four years, than in those with primary malignant hypertension, who died in from eight to nineteen months. Uraemia was progressive in all cases, as was a severe hypochromic anaemia.

Malignant Phase of Hypertension.—This occurred in older patients who had a history of hypertension of at least several years' duration. Impairment of vision was less commonly complained of, the presenting features being breathlessness on exertion and fatigue. Cardiac enlargement was present in all cases. The blood urea was either normal or but little raised, except terminally in one patient. Anaemia did not occur. Fundal examination showed sclerotic changes in the retinal arteries, old waxy hyaline exudates, and chronic retinal and disk oedema; fresh haemorrhages and exudates were superimposed. The prognosis was much better in this than in the previous group, five of the seven patients being

alive after eight months to four years. One woman died from a cerebral haemorrhage, and one man from uraemia.

As is described by Hadfield and Garrod (1947), a sudden rise in blood pressure causes arteriolar necrosis, in contrast to the fibrous thickening in the vessel walls which occurs in essential hypertension. In the first group extensive arteriolar damage occurred, particularly in the retina and the kidney. In the second group the arterioles were thickened to withstand chronic hypertension, and the subsequent changes were less severe.

Ganglion-blocking agents produced a fall in pressure to normal levels, with a dramatic improvement in the symptoms and signs in the 12 cases treated. Effective control of the pressure was not obtained after discharge of these patients from hospital, due to causes such as postural hypotension, constipation, vomiting and diarrhoea, blurring of vision, and, in some instances, discontinuance by the patients themselves of treatment. Even when full dosage was used the natural tendency of the patient to return to normal activity was followed by a rise in the pressure level. In the later stages control in hospital of the pressure level failed to arrest deterioration. However, regression of symptoms and signs of the malignant phase of hypertension was obtained more readily, with a probable extension of life.

Discussion

The marked improvement in the symptoms and signs in patients with hypertension which follows the application of general measures of treatment with and without ganglion-blocking agents has led us to adopt the hypothesis that control of the pressure level will return those patients to the category of asymptomatic hypertension, the prognosis of which is good. It has seemed reasonable to adopt measures which produce only a moderate reduction in the diastolic pressure level, as, from observation, the actual level is of less importance than the individual response to it. The period of observation has been inadequate to decide whether this symptomatic approach to treatment has increased or has failed to extend the expectation of life. However, observation of a few patients with hypertension in acute form, malignant hypertension, suggests that maintenance of the blood pressure at a level approaching normal—for example, under 100 mm.—is probably desirable in a proportion of individuals if the life expectation is to be increased. We have found that a marked reduction is not well tolerated by patients who have been accustomed to hypertension of several years' duration. Schroeder (1952b) has observed that this period of discomfort and loss of energy is transient, adaptation to the lower level gradually taking place.

If it is agreed that reduction in the level of the diastolic pressure is desirable, ganglion-blocking agents are the drugs of choice, in that they alone produce an immediate and definite fall in pressure. Maintenance of this effect is difficult to accomplish, owing to the development of tolerance to the drug, and is comparable to the regression following sympathectomy. It might be advisable to combine ganglion-blocking agents with other drugs which have different sites of action. A simple homologue of hexamethonium, pentolinium tartrate, has been found to be more useful in that it is more predictable in action, the duration of action is longer, and more stable control is obtained. It is probable that further work in the development of ganglion-blocking agents will result in the discovery of new compounds of greater value. Whatever the initiating mechanism of hypertension, the factor responsible for its maintenance is the arteriolar tonus, as has been shown by the response to sympathetic block. Treatment with ganglion-blocking agents must be regarded as symptomatic, in that no permanent alteration in the pressure level is achieved, and a rise always follows withdrawal of the drug. It is possible that at some future date advancement in knowledge of the synthesis and metabolism of cortical steroids may result in the production of compounds which will inhibit these, and will permit of

a more fundamental control of hypertension. Alternatively, in that constriction of the arterioles is a function of nor-adrenaline, it is possible that means will be found to increase the activity of the enzyme iminase, which is responsible for the destruction of this pressor amine.

Summary

Although the prognosis in uncomplicated hypertension is usually good, elevation of the diastolic blood pressure is in many cases followed by symptoms and signs of heart failure, and when these develop the expectation of life is limited. General measures of treatment are rest, sedation, a salt-poor diet, and subsequent restriction of mental and physical activity. If these prove inadequate, and if the blood pressure is not labile, methonium compounds are indicated.

We wish to thank Dr. T. Parker, group medical superintendent, Paisley and District Hospitals, for his kindness in making available the hospital records. We are indebted to Dr. A. J. M. Campbell and Dr. W. G. Manderson for their assistance in the management of our hypertensive patients, and for the preparation, with Dr. R. Dryden and Dr. T. Forrest, of summarized case records, and to Miss W. Wilson for secretarial assistance.

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