

ABSTRACTS OF CARDIOLOGY

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Use of Mecamylamine in the Management of Hypertension. F. H. SMIRK and E. G. MCQUEEN. *Brit. med. J.*, 1, 422, 1957.

The efficacy of mecamylamine ("inversine"), a secondary amine, in the management over a period of 4 to 8 months of 40 patients suffering from hypertension is discussed. Unlike the quaternary ammonium compounds pentolinium ("ansolysen") and chlorisondamine ("ecolid"), which are tertiary amines, mecamylamine is almost completely absorbed from the alimentary tract, so that the effective oral dose is little higher than the parenteral dose. Since the effect of mecamylamine lasts for over 12 hours, the drug is given in the present series of cases twice or occasionally 3 times a day. The average daily dose for satisfactory control of hypertension was 33 mg.; in no case did it exceed 70 mg. However, mecamylamine was more often associated with parasympathetic side-effects than either pentolinium or chlorisondamine, these side-effects causing considerable discomfort in 25 of the 40 patients. Constipation and abdominal distension were reported in 14 cases, dryness of the mouth in 11, nausea and vomiting in 9, and dysuria and blurring of vision in 5 each.

The authors point out that other secondary amines as yet untested may prove to be more satisfactory as ganglion-blocking agents than any of those which are at present available.

A. G. Freeman

Renal Haemodynamic Effects of Hypotensive Drugs.

I. Acute Effects of Hexamethonium Bromide before and after Treatment with Reserpine. B. GOLDBERG. *Lancet*, 1, 74, 1957.

Hexamethonium was given intravenously to 13 hypertensive patients at the Middlesex Hospital, London, in doses sufficient to reduce the blood pressure with the patient in the recumbent position. During the fall of pressure the renal plasma flow fell, as also did urine flow and potassium and sodium excretion. Little significant alteration in these patterns of response took place when, in 5 cases, the hexamethonium was given during treatment with reserpine. At the height of the hypotensive effect of methonium salts there is usually renal vasoconstriction. This may be a consequence of vasodilatation and pooling of blood in the limbs leading to decreased cardiac output and diversion of blood from the kidneys.

J. McMichael

Renal Haemodynamic Effects of Hypotensive Drugs.

II. Effects of Oral Maintenance Therapy with Pentapryrrolidinium Bitartrate and Reserpine. L. McDONALD and B. GOLDBERG. *Lancet*, 1, 77, 1957.

The long-term effects of the oral treatment of hypertension with pentolinium and reserpine were observed at

the Middlesex and National Heart Hospitals, London, in 6 patients, all but one of whom showed a satisfactory response of the blood pressure to the treatment. A slight lowering of the renal vascular resistance was observed, but the cardiac output and general renal haemodynamic patterns were little changed.

J. McMichael

Results of Nephrectomy in Hypertensive Patients. G. J. THOMPSON. *J. Urol. (Baltimore)*, 77, 358, 1957.

At the Mayo Clinic approximately 3000 patients were subjected to unilateral nephrectomy during the 15-year period 1940-54, and of these, 11 per cent were found to have hypertension. Of these 337 (194 females and 143 males), 39 had renal tumours, 119 an atrophied or hypoplastic kidney, while 179 suffered from miscellaneous renal conditions. A "good early effect" of nephrectomy was defined as a reduction in blood pressure to 140/90 mm. Hg, which was maintained when the patient was discharged from hospital. A "good late result" was recorded when the blood pressure remained below 140/90 mm. Hg for more than one year.

Of the 39 patients with renal tumours, a good early result was achieved in 12, but a year later only 5 had a normal blood pressure. Sympathectomy was performed in addition to nephrectomy in 29 cases—19 of atrophic pyelonephritis and 10 of other forms of unilateral renal disease.

When these 29 cases and 39 of renal tumour were excluded there remained 100 cases of atrophic pyelonephritis and 169 cases of other renal conditions for analysis of the results of nephrectomy in cases of hypertension. The results were better after nephrectomy in patients with atrophic pyelonephritis than in those with other forms of unilateral renal disease, a good early effect being obtained in 63 per cent compared with 38 per cent. After a follow-up period of one year or more the results were good in 35 of 64 patients suffering from atrophic pyelonephritis who were traced and in 25 of 100 with other renal conditions.

The authors conclude that nephrectomy should be performed on hypertensive patients suffering from severe unilateral renal disease, provided there are no other conditions which contraindicate operation.

L. G. Fallows

Alveolar Walls in Mitral Stenosis. R. M. O'NEAL, W. A. THOMAS, K. T. LEE, and E. R. RABIN. *Circulation (N.Y.)*, 15, 64, 1957.

The extent and the character of the changes in the alveolar walls in mitral stenosis were studied in 95 cases seen at necropsy at Washington University School of Medicine, St. Louis, Missouri. Contrary to the observations of others, the authors found that the changes in

these cases were focal rather than widespread in distribution. Capillary dilatation was the commonest change, but even that was slight. The fibrous thickening of the alveolar walls, the thickening of the capillary basement membrane, and the cuboidal cells lining the alveoli, which have been noted by others, were seen in only a few cases of the present series and, when they did occur, were so focal in distribution as to make it unlikely that they could be of any physiological significance. The pathogenesis of these changes is briefly discussed.

J. B. Wilson

Necrotizing and Healing Pulmonary Arteritis with Advanced Mitral Stenosis. D. M. SPAIN. *A.M.A. Arch. Path.*, 62, 489, 1956.

From the necropsy records of 26 patients dying of rheumatic fever at the Presbyterian Hospital, New York, the author has studied the relationship between rheumatic heart disease and necrotizing pulmonary arteritis. The lesions involved small and medium-sized vessels, especially at bifurcations. Active lesions showed fibrinoid or eosinophilic necrosis, with an intramural and perivascular inflammatory cell infiltrate which included only a few eosinophil granulocytes and no giant cells. Healed lesions were characterized by focal scars, the formation of new vessels in the arterial walls, and intimal fibrosis, the last named sometimes obliterating the arterial lumen; if recanalization occurred the condition resembled healed thrombo-embolism, but could be distinguished from the latter by the presence of focal scarring and the intramural new vessels.

Detailed analysis of these 26 cases revealed no correlation between the activity of the lesion and the activity of the rheumatic state, as judged by clinical or post-mortem findings. The only constant feature was the presence of severe mitral stenosis, and analysis of the records of 600 other cases of rheumatic heart disease showed that necrotizing pulmonary arteritis was never present in the absence of advanced mitral stenosis.

The author concludes that necrotizing pulmonary arteritis is not specifically rheumatic and that, since it is related constantly to advanced mitral stenosis, it is probably due to severe pulmonary hypertension.

M. C. Berenbaum

The Role of Valvular Incompetence in Heart Failure.

J. MCMICHAEL and J. P. SHILLINGFORD. *Brit. med. J.*, 1, 537, 1957.

In this paper the part played by tricuspid incompetence in heart failure is reviewed. As tricuspid incompetence develops and increases in severity the fall in right atrial pressure which normally occurs with ventricular contraction (the "X descent"), as recorded by cardiac catheterization, is progressively lessened, obliterated, and replaced by a positive systolic pulsation. The amount of valvular incompetence can be estimated by recently devised dye-dilution methods. In 50 patients with various forms of heart disease with and without failure a remarkably close relationship was found between the level of the mean venous pressure and the development of functional tricuspid incompetence. The critical mean venous pressure was 8 mm. Hg above normal. This

relationship held true except in constrictive pericarditis and conditions with very fast venous return, such as anaemia and thyrotoxicosis. In cardiac failure the aperture of tricuspid reflex may even become greater than that of the fully-open pulmonary valve, and the regurgitant flow may reach 6 to 7 litres a minute while the forward cardiac output is only 2 to 3 litres a minute. When the regurgitant stroke-output exceeds 40 ml. liver pulsation is obvious.

Exercise may actually decrease the forward output of the failing right ventricle, while increasing its total output. This probably explains the fixed or falling cardiac output which occurs with exercise in congestive failure, and may also explain the breakdown of Starling's law with rising venous pressure.

In view of these facts heart failure can no longer be clearly divided into "low-output" and "high-output" types.

D. Emslie-Smith

The Effect on the Left Ventricle of Surgical Closure of a Widely Patent Ductus Arteriosus. P. SOULIÉ, J. MATHEY, J. NOUAILLE, O. SCHWEISGUTH, P. VERNANT, P. CORONE, and G. O. OUSTRIÈRES. *Arch. Mal. Cœur*, 50, 97, 1957.

The steep increase in the resistance to left ventricular outflow after closure of a patent ductus arteriosus may account for changes in the T wave of the electrocardiogram (EC) which sometimes follow this operation. In an infant of 7 months, closure of the duct was followed next day by severe left ventricular failure which was relieved only by direct aspiration of blood from the right ventricle. The EC 24 hours later showed the pattern of left ventricular stress. A less dramatic episode of failure occurred one week later. In 2 children aged 11 and 13 years respectively the effects on the left ventricle of closure of the duct were less startling. One showed changes in the EC on the 11th postoperative day; the other suffered tachycardia with systemic hypertension on the day following operation, and the EC revealed the pattern of left ventricular stress; improvement quickly followed the administration of digitalis, a mercurial diuretic, and reserpine.

The authors observe that awareness of the possibility of such developments will enable appropriate measures to be taken (1) in prevention, by avoiding excessive replacement of blood loss, and (2) in treatment, by immediate cardiac aspiration if no suitable vessels are accessible.

R. S. Stevens

The Electrocardiogram in Atrial Septal Defect. A Study of Twenty-four Cases, with Observations on the RSR'-V1 Pattern. W. R. MILNOR and C. A. BERTRAND. *Amer. J. Med.*, 22, 223, 1957.

At the Johns Hopkins University Hospital, Baltimore, the authors have studied 24 patients in 7 of whom the diagnosis of atrial septal defect was verified at necropsy and in 17 at operation. Persistent ostium primum was diagnosed in 6 cases and ostium secundum in 18. Only 3 of the patients with persistent ostium primum, the 3 with a cleft in the aortic cusp of the mitral valve could be distinguished from the other 21 in that the EC in these

cases showed left axis deviation and signs of combined right and left ventricular hypertrophy—signs that are regarded as being due to the mitral incompetence.

In 22 cases there were signs of right ventricular hypertrophy and in 18 of right axis deviation. An RSR' pattern in V1 was found in 15 patients (63%), with a QRS duration of 0.09 second or less in 5 cases, 0.09 to 0.12 second in 8, and 0.12 second or more in 2 cases. Regarding the controversial question whether an RSR' pattern in V1 with a QRS duration of less than 0.12 second necessarily indicates delay in a bundle branch, the authors state their reasons for assuming that this pattern may represent a stage in the development of signs in the EC of right ventricular hypertrophy not necessarily associated with disturbances of conduction; in their view the term "incomplete right bundle-branch block" should be abandoned. The pattern of RSR' in V1 is far commoner in atrial septal defect than in other clinically similar conditions and is thus of some differential diagnostic value, but the authors disagree with the statement of Barber *et al.* (*Brit. Heart J.*, 1950, 12, 277) that "the diagnosis of atrial septal defect is almost untenable in the absence of partial or complete right bundle-branch block" since such an EC pattern was absent in 9 (37%) of this series of patients. *A. Schott*

Surgical Treatment of Aortic Stenosis. R. BROCK. *Brit. med. J.*, 1, 1019, 1957.

The author discusses the clinical features and surgical treatments of aortic stenosis with reference to the results of 120 operations carried out in such cases. Though conservative treatment is still often urged on the grounds that the expectation of life may be long, he thinks that this is only occasionally the case and that the condition may occur in comparatively young people. Out of 78 patients with severe symptoms, 31 were below 40 and 56 below 50 years old.

Assessment of the patient's clinical state should not

depend on symptoms—the left ventricle is capable of a considerable degree of compensation and the presence of obvious symptoms may indicate the onset of failure. More exact measurement of the load on the heart must be obtained. The figures and curves obtained from comparison of the pressures in the left ventricle, measured by direct percutaneous puncture, and brachial artery give an actual picture of the pressure gradient across the stenosed valve, which is usually in the region of 50 mm. Hg, though it may reach double this figure. This should be confirmed at operation by direct puncture of the left ventricle and aorta. Apart from fusion of the valve cusps in aortic stenosis there is a considerable degree of distortion, and calcification is frequent. The rock-like valves that are sometimes encountered cannot be mobilized except at the risk of severe regurgitation, and it is doubtful whether "cure" is ever possible when the valves are calcified. Calcification is less common in aortic stenosis associated with mitral valvular disease, 20 out of 34 such cases in the author's series being free from this complication.

Combined mitral and aortic valvotomy was undertaken in 34 of the author's cases, with 3 operative deaths (due to the mitral lesion). In 12 cases the result was "good" or "excellent". Four patients have since died. There were 2 cases of aortic stenosis associated with coarctation, both lesions being severe.

Excluding 5 cases of subvalvular stenosis and one in which valvotomy was not carried out there were 78 cases of isolated aortic stenosis, some of which, particularly the early cases, being very bad risks. The over-all mortality was 18 per cent, but excluding the first 8 cases it was 13 per cent, and of the last 48 patients treated, only 3 have died. Of the 64 survivors, 9 have since died; the results in 42 can be classed as "good" or "excellent". Regurgitation following operation was observed in 14 cases and in 4 cases was responsible for later death, but in some cases preoperative regurgitation has been relieved. *T. Holmes Sellors*