

months in 14, and over 12 months in 5 cases. The duration was not stated in 3 cases. The usual order of daily dosage was 1 (39 cases) or 2 teaspoonfuls (20 cases). Five infants had $\frac{1}{2}$ teaspoonful daily, 2 had $1\frac{1}{2}$, and 4 had 3 teaspoonfuls daily.

Indications.—In 90 cases these carminatives had been given with a view to alleviating "wind." In 20 cases the indication had been colic, abdominal pain, or cramp; in 6 hiccup; in 5 crossness or crying; and in 4 teething. Other reasons given were "to aid sleep" (2), "for sourness" (1), "to cool her" (1), and in 4 cases no reason was stated.

Recommendation.—Fifty-five of the mothers began treatment of their own accord, 33 said they acted on the advice of a female relative, and 20 on that of friends and neighbours. Twelve said they were so advised by the welfare clinic, 8 by their family doctors, 3 by chemists, and 2 by hospital midwives.

Results.—Ninety-three of the mothers thought the results of the treatment were good, 29 condemned it, 4 were doubtful, and 7 expressed no opinion.

Discussion

Despite the retrospective nature and subjective method of this survey the findings in this group of children seem to confirm the clinical impression that the use of alkaline mixtures is common in infancy. In this series 184 (92%) of the children were said to have received some alkali medication at some time; often only an occasional teaspoonful had been given, but in a considerable number of cases the mixtures had apparently been persisted with for prolonged periods.

A remarkable case of marasmus was described by Holt and McIntosh (1940), the infant having been fed exclusively on a magnesia preparation in the belief that it was a food. Nothing of this nature has been encountered during this investigation, and no obvious ill effects can be attributed to these medicaments. This is in contrast to the recently recognized dangers of teething powders containing mercury which have been incriminated as possible factors in the aetiology of pink disease (Gaisford, 1949; Dathan, 1954) and in some cases of nephrosis (Wilson, Thomson, and Holzel, 1952). In the present investigation teething powders of this type were regularly ingested by 22% of the infants: this figure compares with 6.9% in the Manchester region and 37% in Warwickshire, as reported by Holzel and James (1952).

Alkalosis has been considered as a possible complication of prolonged and heavy dosage with those magnesia preparations of high alkalinity, especially where there has been concurrent vomiting. However, in a small number of infants receiving such dosage alkali reserve levels have always been within normal limits.

Although not actively harmful, this habit of dosing infants with alkalis is meddlesome and unnecessary. This being so, it should be discouraged. These medicaments are not expensive and are often given for symptoms which exist only in the imagination of the mother. That their infants should defaecate daily with absolute regularity amounts almost to an obsession with many mothers, and seems to determine the frequent resort to magnesia. The crying and fretfulness so often put down to wind may well be due to unsatisfied hunger (*British Medical Journal*, 1954), for which carminatives are a poor remedy. It is perhaps not generally realized that one of the most popular of these mixtures (preparation A in Table II) contains about 4% of ethyl alcohol, a concentration not far below that of some brands of beer, stout, and cider. This small amount of alcohol, acting as a mild soporific, may possibly serve to allay hunger and provoke sleep with at least a temporary alleviation of the infant's discontent.

Summary

Of 200 apparently normal infants, 184 (92%) had been given some alkaline mixtures at some time. Magnesia had been given to 158 (79%), generally for

the regulation of the bowels, and 133 (66.5%) had received carminatives, usually for "wind." Both magnesia and carminatives had been given to 107 (53.5%). The main features of this "therapy" are outlined, and its unnecessary nature is stressed. No obvious ill effects are attributed to these medicaments.

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REFERENCES

- British Medical Journal*, 1954, 1, 265.
Campbell, W. A. B., and Checseman, E. A. (1954). *Brit. J. prev. soc. Med.*, 8, 51.
Carré, I. J., Wood, B. S. B., and Smallwood, W. C. (1954). *Arch. dis. Childh.*, 29, 326.
Creery, R. D. G. (1953). *Lancet*, 2, 17.
— and Neill, D. W. (1954). *Ibid.*, 2, 110.
Dathan, J. G. (1954). *British Medical Journal*, 1, 247.
Gaisford, W. (1949). *Practitioner*, 163, 289.
Holt, L. E., jun., and McIntosh, R. (1940). *Diseases of Infancy and Childhood*, 11th ed., p. 234. N.Y.
Holzel, A., and James, T. (1952). *Lancet*, 1, 441.
Wilson, V. K., Thomson, M. L., and Holzel, A. (1952). *British Medical Journal*, 1, 358.

ABO BLOOD GROUPS AND HYPERTENSION

BY

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Evidence has been advanced suggesting that there is an inherited predisposition to arterial hypertension. The influence of heredity in the development of cerebral haemorrhage was examined by Dieulafoy (1876) and Raymond (1907). Broadbent (1897) and Allbutt (1915) recognized inheritance as a factor leading to essential hypertension. A familial incidence has been shown by Weitz (1923) and Ayman (1933). Platt (1947) found a hereditary factor in 76–86% of cases of essential hypertension, and concluded that this is a hereditary disease conveyed as a Mendelian dominant, with a rate of expression of more than 90%. Thomas and Cohen (1955) have determined the relationship of inheritance of hypertension to the associated conditions, coronary artery disease, obesity, and diabetes.

The examination by Waterhouse and Hogben (1947) and Allan (1953) of fertility and abortion, together with the demonstration by Struthers (1951) of an excess of group A children dying from bronchopneumonia, has been followed by the relationship of ABO groups in cancer of the stomach, by Aird *et al.* (1953). Later Aird *et al.* (1954) have shown that there is a relative increase in the numbers of Group O subjects among those who have peptic ulceration.

We have therefore determined the ABO frequency distribution in a series of patients with essential hypertension.

The majority of the patients in this series (1,790) attended between 1948 and 1954 at the West of Scotland Regional Blood Transfusion Centre for venesection, being referred by their doctors because of hypertension.

The remainder were investigated by Graham and Maxwell (1954); the criteria for diagnosis have been recorded. The age distribution at the first examination is recorded in Table I.

TABLE I.—Hypertensive Age Distribution

	Males		Females	
	No.	%	No.	%
Under 49	3	0.50	13	0.84
50-54	12	2.01	53	3.42
55-59	84	14.07	253	16.32
60-64	205	34.35	478	30.84
65-69	227	38.02	521	33.61
70+	66	11.05	232	14.97
Total ..	597		1,550	

The control series was provided by 7,418 consecutive new registrations of blood donors at the transfusion centre. Blood groups were all determined at this centre, using the methods described by the M.R.C. (1943, 1952).

Results

The distribution of groups in our series of 2,147 cases in comparison with the control series of 7,418 cases is shown in Table II.

TABLE II.—Basic Data

Blood Group	Control	Hypertension		
		Males	Females	Total
O	3,853	309	829	1,138
A	2,485	209	513	722
B	817	72	165	237
AB	263	7	43	50
Total	7,418	597	1,550	2,147

The percentage group frequencies and the percentage increase or decrease on control, together with the sex incidence in hypertensive patients, are given in Table III.

TABLE III.—Percentage Group Frequencies

Blood Group	Control	Hypertension	% Increase or Decrease on Control	Hypertension Sex Distribution	
				% Male	% Female
O	51.94	53.04	+2.12	51.76	53.48
A	33.50	33.62	+0.36	35.01	33.10
B	11.01	11.02	-0.72	12.06	10.65
AB	3.55	2.32	-34.65	1.17	2.77

From this it can be seen that there is little difference in distribution except in the AB group. However, the difference in relative frequency of the four blood groups between the hypertensive cases and the control cases is not significant ($\chi^2=7.815$, $0.05>P>0.01$). The difference is due almost entirely to a deficiency of hypertensive cases in the AB group. A slight excess of cases in Group O, 18 greater than expectation, is not significant.

The rhesus group frequencies are recorded in Table IV. The RhD-negative percentage of a smaller group of hypertensive patients is recorded, being those who presented between 1950 and 1954. The difference in Rh incidence between those and the control series of new registrations is not significant.

TABLE IV.—Rhesus Group Frequencies

	Rhesus-positive	Rhesus-negative	Total	% Rhesus-negative
Control ..	1,255	263	1,518	17.3
Hypertension ..	1,034	213	1,247	17.1

Discussion

Hypertension and peptic ulceration are believed to have several factors in common. The mechanisms of control of the blood pressure and the gastric secretion are similar. Eppinger and Hess (1915) linked hypertension with peptic

ulceration, suggesting a common basis of autonomic imbalance, and it is possible that stress produces a mainly vasomotor, or gastric secretomotor, response. In view of the Group O disadvantage in peptic ulceration, it would not have been surprising to find an ABO relationship in essential hypertension. However, as Aird *et al.* (1954) have commented, there must be an assumption that there is no association in the absence of strong evidence. The results of this survey show no significant difference in the O, A, and B distributions in the hypertensive and control series. The slight advantage in the AB group, particularly in males, is due probably to the relatively small number involved.

Conclusion

The distribution of blood groups in 2,147 patients with essential hypertension has been examined, and no significant difference in incidence in the O, A, and B distribution has been found in comparison with the distribution in a control series of 7,418 donors. An apparent slight advantage in the AB group is regarded as due to the limited sample. It is concluded that, although an inherited factor in essential hypertension is accepted, there is no association with ABO inheritance.

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REFERENCES

- Aird, I., Bentall, H. H., Mehigan, J. A., and Roberts, J. A. F. (1954). *British Medical Journal*, 2, 315.
 — and Roberts, J. A. F. (1953). *Ibid.*, 1, 799.
 Allan, T. M. (1953). *Brit. J. prev. soc. Med.*, 7, 220.
 Allbutt, T. C. (1915). *Diseases of the Arteries, including Angina Pectoris*, pp. 164, 412. Macmillan, London.
 Ayman, D. (1933). *New Engl. J. Med.*, 209, 194.
 Broadbent, W. H., and Broadbent, J. F. H. (1897). *Heart Disease*, p. 80. Wood, New York.
 Dieulafoy, M. (1876). *Gaz. hebdomadaire*, 13, 594.
 Eppinger, H., and Hess, L. (1915). *Vagotonia*. Nerv. and Ment. Dis. Pub. Co., New York.
 Graham, J. G., and Maxwell, R. D. H. (1954). *British Medical Journal*, 2, 1250.
 M.R.C. (1943). War Memoranda, No. 9.
 — (1952). *Ibid.*, No. 27.
 Platt, R. (1947). *Quart. J. Med.*, 16, 111.
 Raymond P. (1907). *Progr. méd. (Paris)*, 23, 196.
 Struthers, D. (1951). *Brit. J. prev. soc. Med.*, 5, 223.
 Thomas, C. B., and Cohen, B. H. (1955). *Ann. intern. Med.*, 42, 90.
 Waterhouse, J. A. H., and Hogben, L. (1947). *Brit. J. soc. Med.*, 1, 1.
 Weitz, W. (1923). *Z. klin. Med.*, 96, 151.

RUPTURED SPLEEN REPORT OF FIVE CASES

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Rupture of the spleen is a clinical problem and valuable time may be wasted in carrying out unnecessary investigations, with a corresponding increase in the mortality rate. The clinical signs depend on the degree of damage to the splenic tissue and the rate of bleeding. Ballance's sign is regarded as a classical manifestation but is by no means always present, depending as it does on the development of a large perisplenic haematoma and free intraperitoneal blood. Perhaps the most valuable sign, taken in conjunction with the other physical findings, is the presence of left shoulder pain; this may be present spontaneously; it can be elicited by raising the foot of the bed or by pressure on the phrenic nerve in the neck.

Between October, 1952, and May, 1953, five cases of rupture of the spleen were admitted to the Royal Free Hospital. Splenectomy was performed successfully in all five cases.