sigmoid volvulus constituted 25% of all cases of intestinal obstruction seen at a certain mental hospital in the U.S.A. during five years (Dean and Murry, 1952). Again, more than half the patients in a series in the U.S.A. were psychotic (Gabriel *et al.*, 1953). One-quarter had no complaint and were brought because others had noted distension. In these mental patients chronic constipation due to faulty bowel habit had led to enlargement of the sigmoid.

Management of Sigmoid Volvulus.—There is no uniformity of opinion regarding management. In Uganda Shepherd (personal communication) uses a sigmoidoscope to guide a flatus tube into the dilated segment, which is carefully inspected for signs of vascular insufficiency. The flatus tube is left in place for 72 hours, and the patient is kept under careful observation. The bowel is prepared by oral antibiotics, and a few days later resection is carried out. The mortality rate has been 2%. However, Shepherd agrees that if the patients are allowed home they often do not return for surgery until the next attack. In Brazil, where this condition is very common, Professor A. C. Netto (personal communication) and his colleagues believe it to differ from sigmoid volvulus seen elsewhere. They regard it as one of the complications of megacolon, either acquired or due to Chagas's disease. They believe that in their country the definitive cure of volvulus can be accomplished only by abdominoperineal rectosigmoidectomy, and they have used this operation for sigmoid volvulus since 1940. Recently they have been using a modified Duhamel technique (Haddad *et al.*, 1965). It is difficult to be certain whether sigmoid volvulus in Brazil is in fact different from this condition seen elsewhere.

Though our experience with primary resection has been a fairly happy one, we have used this method out of necessity

because our patients refused a second operation. In a European or other advanced community the ideal method in our opinion would be to untwist the volvulus at laparotomy and to perform elective resection and anastomosis a few weeks later.

Summary

The prevalence of volvulus of the sigmoid among Pathans is reported. In cases with a viable sigmoid colon primary resection and anastomosis was followed by a mortality rate of 3.8%.

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Preliminary Communications

Increase in the Incidence of Non-secretors of ABH Blood Group Substances among Alcoholic Patients

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As an offshoot of a biochemical study of carbohydrate metabolism and alcoholism it was decided to carry out blood group studies on patients admitted to various alcoholic units. Scrutiny of the results of testing 100 patients for the antigens A, B, M, N, S, D, C, E, c, K, and Fy^a revealed no obvious disturbance of the frequencies of the various phenotypes compared with the normal population. However, the results of the tests for secretion of group-specific substances A, B, and H, together with anti-Le^a and anti-Le^b typing, suggested that among these patients there was a higher incidence of the non-secretor individual than among the random population. A further 218 alcoholic patients were tested with this comparison in mind. This further series included not only alcoholic patients in hospital but some individuals from rehabilitation groups.¹

So far as possible nationality was recorded. This was important information, since there seems to be some degree of

variation in blood group secretor frequencies, even among inhabitants of different parts of the British Isles. For comparison, a random series of individuals were tested for ABO groups and secretion. These comprised 166 blood donors, 56 members of the staff of the North London Regional Transfusion Centre, 73 members of the staff of the South London Regional Transfusion Centre, and 28 members of the staff of the London Hospital.

MATERIALS AND METHODS

Blood Samples.—Small clotted or heparinized samples were collected from each person either by venepuncture or by ear-prick.

Saliva Samples.—From each patient 1-2 ml. of saliva was collected into clean, dry Universal containers. As soon as possible after collection these were placed in a boiling-water bath for 15 minutes to destroy enzymes which might interfere with the activity of the blood group substances. They were then diluted one in two with normal saline and stored frozen at -20° C. until required.

Antisera.—Most of the antisera used throughout the investigation were kindly supplied by Dr. R. A. Zeitlin, of the South London Regional Transfusion Centre. Specially selected anti-A and anti-B sera were used for the inhibition tests on saliva samples. H was detected by means of anti-H from

¹ Since testing this series a further 60 alcoholic individuals have been investigated; 24 of these were non-secretors of ABH substances.

Ulex europaeus, and *Dolichos biflorus* extract was used to make the distinction between subgroups A₁ and A₂.

All red-cell typings were carried out by standard tube technique with the exception of the tests with *Dolichos biflorus*, which was used by a tile method. Anti-Le^a and anti-Le^b typing tests were placed in a cold-water bath at a constant temperature of 15° C.

Detection of Group-specific Substances in Saliva.—The presence or absence of blood group substances in saliva was determined by making serial dilutions of saliva and adding an equal quantity of the appropriate antiserum to each tube of the row. The antisera used were diluted to give titres of approximately 32. The saliva-serum mixtures were allowed to stand at room temperature for one hour, after which one volume of a 2% red-cell suspension of the appropriate group was added and the degree of agglutination present in each tube was recorded after a further two hours. Every sample of saliva was tested for its content of H in addition to A and B.

RESULTS

Table I shows the distribution of secretors and non-secretors, including the ABO blood groups, in the first 100 alcoholic patients tested, while Table II gives similar data for a further 218. In the first 100 and the second 218 patients the non-secretor frequencies were 32% and 32.11% respectively. These figures have to be compared with the 323 controls, of which 23.22% were non-secretors. The χ^2 value for the first 100 patients is 4.32 (for 1 d.f. $P<0.05>0.02$) and for the remaining 218 patients χ^2 is 9.66 (for 1 d.f. $P<0.01>0.001$). The χ^2 for all 318 patients is 13.98 (for 1 d.f. $P<0.001$).

TABLE I.—Distribution of ABO Groups and Secretor Status of First 100 Patients

Patients:	A ₁	A ₂	A*	B	O	AB	Total
Secretors ...	19	2	1	6	39	1	68
Non-secretors	11	6	0	2	12	1	32
Total ..	30	8	1	8	51	2	100

* Not subgrouped.

TABLE II.—Distribution of ABO Groups and Secretor Status of 218 Patients

Patients:	A ₁	A ₂	A*	B	O	AB	Total
Secretors ...	39	13	2	17	72	5	148
Non-secretors	24	6	2	6	31	1	70
Total ..	63	19	4	23	103	6	218

* Not subgrouped.

From a comparison of the distribution of secretor/non-secretor status between the A and O groups it appeared that more than the expected number of people were both group A and non-secretor. In the combined samples 39.2% of group A and 27.9% of group O were non-secretors; groups B and AB were not included owing to insufficient numbers. The significance of this finding was tested by constructing 2 × 2 tables (see Table III). A χ^2 of 3.97 was obtained (for 1 df. $P<0.05>0.02$). A similar comparison of the frequencies of non-

TABLE III			
	Secretors	Non-secretors	Total
A	76	49	125
O	111	43	154
	187	92	279

secretors between groups O and A among 287 of the control sample yielded a χ^2 of 0.099.

DISCUSSION

The secretor/non-secretor distribution has been studied in several diseases. Glynn *et al.* (1959) found an excess of non-secretors among cases of rheumatic fever, and Clarke *et al.* (1956) noted that the incidence of duodenal ulcer is more common in non-secretors than in secretors. Of the 318 alcoholic patients tested, 36 had gastric or duodenal ulcers. Nine of these were non-secretors. Thus this condition was not responsible for the increase in non-secretors among our series.

The possibility that racial variation might affect the secretor/non-secretor ratio has to be considered. In the series there were 150 English patients and 168 others. The breakdown of the latter group showed Scottish 31, Irish 50, Welsh 10, other nationalities 20, and unknown nationality 57. Those of unknown nationality were all inhabitants of the British Isles, but the areas from which they originated were unknown. Ikin *et al.* (quoted by Mourant, 1954) give frequencies for Scottish and Irish Le (a+b-) individuals of 28.46% and 31.13% respectively, albeit the Irish figure is based on a sample of 106.

Though probably one-third of the alcoholic patients were of Celtic origin, we do not believe that the increase in the number of non-secretors these might produce is such as to account for the increase of non-secretors observed. Moreover, if the English sample of 150 patients (non-secretors 52) is considered alone, a χ^2 value of 8.47 (for 1 d.f. $P<0.01>0.001$) is obtained.

The apparent association between non-secretion of ABH substances and alcoholism may yet be fortuitous, and hitherto unnoticed factors may account for the observations described.

One difficulty in offering an explanation which depends on the presence or absence of particular ABO or Lewis blood group substances is the close chemical similarity between these substances.

In conclusion, our findings are presented tentatively, but we think the figures are of sufficient interest for a preliminary publication. If by means of future studies which we intend to carry out the facts become well authenticated and other points emerge, they may well give weight to the suggestion that a genetically determined predisposition to the disease of alcoholism is an important factor to be taken into account when attempting to study its complicated aetiology.

We should have been unable to carry out this preliminary survey but for the kindness of many people. Our thanks are first of all due to the patients themselves for their interested co-operation. We are indebted to Dr. M. M. Glatt, Dr. G. C. Siegruhn, Dr. J. Merry, Lord Soper, and the Rev. A. Whitehead for their help and interest. We have pleasure in acknowledging the kind co-operation of Mr. L. G. Coates. Dr. T. E. Cleghorn, Director of the North London Regional Transfusion Centre, supplied us with a large number of the controls, and we are also indebted to Dr. R. A. Zeitlin, of the South London Regional Transfusion Centre. Finally, we should like to thank Dr. E. B. Robson, of the Galton Laboratory, for much valuable advice.

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