the same weight of serum, and within the range of insulin-like activity we have found in normal tissues (Samaan *et al.*, 1965). Further, even though the insulin production may not be reflected in the concentration of insulin extractable from the tumour tissue, the levels of insulin-like activity in the veins draining the tumours in our cases were not higher than those found in peripheral blood. In Case 2, where pancreatic venous blood was obtained, the typical insulin-like activity was much higher than that in the tumour vein.

The possibility remains that the tumours stimulate an increased production of endogenous insulin by the pancreas, as has been suggested by Berson and Yalow (1961). Sellman *et al.* (1959) found high levels of amino-acids in a sarcoma taken from a patient who exhibited hypoglycaemic attacks. Butterfield *et al.* (1960a, 1960b) suggested that it was unlikely that the peripheral tissues took up more glucose in response to these amino-acids, and that their hypoglycaemic effects in sensitive subjects might be due to a transient increase in plasma-insulin activity. Our findings suggest that there was excess serum insulin-like activity circulating pre-operatively, at least until the patients were receiving frequent glucose feeds. After this the serum insulin-like activity fell, possibly as a result of reduction, by the frequent feeds, of the tumours' capacity to stimulate the islets. During the pre-operative glucose-tolerance tests neither case showed the marked rise of serum typical insulin-like activity at 60 minutes which occurs in normal subjects (Table I). This suggests exhaustion of the islet secretion and reserve, perhaps by some chronic abnormal stimulus. The suggestion is supported by the slow return of the blood glucose from 60 to 120 minutes, and also by the subnormal or absent pre-operative response to tolbutamide.

The high levels of atypical insulin-like activity at the first assay (before the frequent feeds and when the spontaneous hypoglycaemia was occurring) suggest excessive previous production of insulin. This finding, together with evidence of defective insulin reserve, suggests that some excessive stimulus to normal insulin production may be the basis of the syndrome. Further support for this theory is provided by the attacks of hypoglycaemia found post-operatively in Case 1. These were probably due to excessive secretion of insulin by hypertrophied islets. The histology of the pancreas is not helpful in these cases, since it is extremely difficult to differentiate between normal and hypertrophied islets. Moreover, the islet cells in the pancreas are not homogeneous in size and those in the tail may be smaller than those in the head.

Summary

Two cases of spontaneous hypoglycaemia relieved by operative removal of retroperitoneal mesotheliomas are reported.

Pre-operatively assays of serum insulin-like activity during glucose-tolerance tests showed a tendency to high atypical insulin-like activity, but little response of typical insulin-like activity to the glucose; nor was a response seen during a tolbutamide test. Post-operatively serum insulin-like activity levels during a glucose-tolerance test were normal.

Operative specimens showed no lowering of tumour-vein glucose, and serum insulin-like activity levels in the tumour vein were the same as those in the aorta or gastric vein. The insulin-like activity was extractable from the tumour in slightly lesser concentrations than from serum or kidney, while the concentration found in pancreatic venous serum was over twice that from any other site.

These findings suggest that these tumours release a substance which stimulates insulin production by pancreatic islets.

We wish to express our indebtedness to Dr. J. G. Azzopardi for the histological reports, and to Dr. Ruth Haslam, of the Department of Chemical Pathology, for the glucose estimations.

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Poisons Information Bureau at Leeds: An Account of Three Years' Work

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Brit. med. J., 1965, **2**, 198–200

The services of the Poisons Information Bureau at Leeds were made available to the public at the beginning of August 1961. A report of the work of the Bureau during the first 16 months was made at the Third International Meeting in Forensic Medicine and Toxicology held in April 1963. Since that time the work of the Bureau has gradually increased. In this paper a report of three full years' working, to 31 July 1964, is given describing the work in all its aspects.

Number of Calls Received

In the three years a total of 1,492 calls have been made to the Bureau. In Table I an analysis of the calls received month by month is given. It will be noticed that in the first seven months after the opening of the Bureau only 20 inquiries a month were made. Since that time, however, about 45 calls on average have been received each month. On 1 September 1963 the bureaux established by the Ministry of Health at London, Cardiff, Edinburgh, and Belfast were opened. It might have been expected that our work would have been con-

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siderably reduced since then. Table I shows, however, that in seven out of the eleven months since these bureaux were opened the number of calls we received was greater than in the same month of the preceding year.

TABLE I.—*Calls From Outside Sources Made to Leeds Poisons Information Bureau, 1961-4*

Month	1961-2		1962-3		1963-4		Average No.
	Total	Percentage Relating to Children	Total	Percentage Relating to Children	Total	Percentage Relating to Children	
August ..	25	92	68	76.4	40	52.5	44.3
September ..	23	82.6	52	69.2	58	53.5	44.3
October ..	17	70.6	53	67.9	50	66	40
November ..	24	50	61	59	39	59	41.3
December ..	15	100	47	63.8	30	50	30.6
January ..	23	65.2	23	39.1	44	50	30
February ..	15	60	32	40.6	34	70.6	27
March ..	50	60	42	59.5	47	66	46.3
April ..	44	63.6	33	45.5	45	57.8	40.6
May ..	40	47.5	42	73.8	51	64.1	44.3
June ..	52	75	46	65.2	59	69.5	52.3
July ..	55	61.8	62	70.9	51	56.4	56
Total ..	383		561		548		

Grand total = 1,492.

Examination of the monthly pattern of calls shows there is a considerable variation month by month. It will be noticed that over the three years the number of calls received starts to go up in March, rising to a peak in summer and subsiding again in autumn. The number of calls relating to adults is in fact steady month by month, and this spring and summer increase seems to be related to the calls made on behalf of children. This variation is well illustrated by the accompanying Graph. It will also be noted that in the earlier months of the

work of the Bureau nearly all the calls related to children, and in December 1961 all the calls related to children. On average, over the three years, 62% of the calls related to children under 15 years of age.

Although the work of the bureaux set up by the Ministry of Health has not reduced the number of calls made, we now find that the geographical location of the calls has altered. When we were the only bureau in business we received calls from all over the country and even from the Continent. Now the calls are largely confined to the Midlands and the North of England. Very few calls are received from London, but we still do receive about one a week.

Classification of Callers

An analysis of the source from which the calls were made is given in Table II. It will be seen that over half the calls came from hospitals and nearly a quarter came from general practitioners. Calls from relatives were 10.3% only, so that the fears expressed in some quarters that the public would swamp the service with unnecessary calls if allowed direct access were quite unfounded. The ethics of answering calls from lay

people is discussed below, but a type of call we do not encourage is when writers of thrillers seek assistance to ensure that the poisoned victim died in the authentic manner.

TABLE II.—*Analysis of Callers (Three-year Totals)*

Callers	No.	%
General practice ..	352	23.6
Hospital ..	780	52.3
Relatives ..	154	10.3
Retail Pharmaceutical ..	23	1.5
Other (includes industry)	183	12.3
Total ..	1,492	100.0

One item of information in our files which has proved of considerable assistance to hospitals on occasion is that relating to the value of the artificial kidney, or other methods of dialysis, in the treatment of various types of poisoning. The experience obtained by our own artificial kidney unit, together with information taken from published papers, notably Jørgensen and Wieth (1963), is listed in our files and has been available to these callers.

Toxic Materials

The materials about which inquiries were made have been classified into seven groups, and the numbers in each group are shown in Table III. If the callers to our Bureau are representative of the whole country it would appear that domestic materials—for example, polishes, detergents, cleaning materials, and bleaches—are responsible for the biggest number of incidents. Table IV shows this is rather more so in children.

TABLE III.—*Analysis of Toxic Materials (Three-year Totals)*

Material	No.	%
Domestic ..	569	38.1
Agricultural and horticultural ..	58	3.9
Cosmetic ..	99	6.6
Home remedies ..	129	8.7
Prescribed medicines ..	414	27.8
Plants and fungi ..	150	10.0
Industrial ..	73	4.9
Total ..	1,492	100.0

These materials are too often left unguarded in many homes. The manufacturers, to promote their sales, usually retail these in brightly coloured packages, and children think such an attractive package must contain something pleasant to eat or drink. Fortunately most of these products are harmless. When we compare the figures given in Table V—which show, classified into the same groups, the causes of the poisoning in patients brought to our casualty department for treatment during this same three-year period—we see quite a different picture. In these patients that came for treatment more than half had swallowed prescribed medicines, predominantly barbiturates.

TABLE IV.—*Materials Taken by Children. Three-year Averages Expressed as a Percentage of 941 Calls*

Domestic	Agricultural and Horticultural	Toilet Preparations	Domestic Medicines	Prescribed Medicines	Plants and Fungi	Industrial
41.9	8.3	6.8	6.8	24.1	11.3	0.6

TABLE V.—*Classification of the Patients Arriving in the Casualty Department for Treatment*

Material	No.	%
Domestic ..	97	7.05
Agricultural and horticultural ..	0	0
Cosmetic ..	9	0.65
Home remedies ..	174	12.63
Prescribed medicines ..	923	67.03
Plants and fungi ..	24	1.74
Industrial ..	36	2.62
Coal-gas ..	114	8.28
Total ..	1,377	100.00

Less than 10%, compared with 38% of inquiries, had taken domestic materials. We had 99 inquiries in regard to cosmetics, but only nine cases came for treatment to the casualty department.

General Working of the Information Bureau

The information files of the Bureau are kept in the casualty department at the General Infirmary at Leeds, being stored in a large cupboard by the side of the telephone. A doctor is on duty in this department night and day, seven days a week. On receiving an inquiry the appropriate file is extracted from the cupboard and placed on a large table by the side of the telephone so that the reference can be easily found. If there is no reference to the material in the files one of us is contacted, and we can take up further inquiries through channels in the pharmaceutical trade or the manufacturers of other materials. If the inquiry comes from a hospital or general practitioner we describe the constituents of the material in question, discuss the probable symptoms that might occur, and suggest methods of treating these symptoms. To non-medical inquirers we either state that the material is not poisonous or, alternatively, if it is poisonous, possibly lethal, direct the relative to take the patient to the nearest hospital for treatment. We also tell the relative that if the hospital to which the patient is taken requires further information we shall be only too pleased to give it, and in numerous instances hospitals have telephoned us for this information.

A report from Boston by Robb *et al.* (1963) surveys the work of the Poisons Centre in that city. This report was reviewed in the *British Medical Journal* (1964), together with the work of poisons bureaux in this country. In both of these it is pointed out that the number of incidents in which the information provided by the bureau dramatically made the difference between life and death was very small. In many cases the information provided help only in treating symptoms. In a considerable number information provided reassurance either to the relatives or to the medical inquirers that the substance ingested was harmless. In Boston and in our Bureau non-medical callers are answered in this way, as outlined in the previous paragraph. In this country the bureaux set up by the Ministry of Health have refused to give information to non-medical callers. In Boston the number of relatives calling is 20% of the total and in Leeds it forms 10%. To reassure this proportionately small number of callers seems a very justifiable part of the work. As we have shown in Table V, the number of patients who come to hospital for treatment after the ingestion of domestic materials, cosmetics, etc., largely harmless, is proportionately much smaller than the calls received concerning these materials. It would seem that an answer to a telephone inquiry reduces the number of patients coming to hospital. We propose to continue giving information in this way.

In this country there are now five active Poisons Information Bureaux. There are the four set up by the Ministry of Health in London, Edinburgh, Cardiff, and Belfast, answering some 2,000 calls a year between them (Goulding 1965). In Leeds we are answering some 500 calls a year, an amount of work equal to the average of each national bureau. Since we were answering some 500 calls a year before the setting up of national

bureaux, it is clear the work has considerably increased since then. Unless the volume of work increases in the same spectacular manner as it has done in the United States, where the Boston Centre, one of 450 centres, answers 500 calls a month, it would seem that five bureaux are enough for the present load of work in this country. In Leeds the work of maintaining and adding to the files of the Bureau is carried out by the staff of the casualty department and the hospital pharmacy. Help is freely given by our medical colleagues in the hospital and by the many scientific departments of Leeds University, adjacent to the hospital. We do not employ any full-time staff on this work, but the labour involved is fitted into the general working of the two departments. The cost therefore of running the service, apparently a matter of increasing concern in Boston, is here very small.

Robb *et al.*, in the conclusion of their survey on the work in Boston, recommend that the Poisons Information Bureau should be integrated with general accident prevention. We certainly regard the work involved by the Poisons Bureau as an integral part of the service provided by our casualty and emergency department. The information in the files is of use in treating patients who come to the department, as well as providing information to outside callers. Poisoning incidents in children are regarded as one of the accidents to be followed up in the patient's home by our home accident visitor. This hospital is also one of the regional poisons centres set up following the recommendations of the Ministry (Central Health Services Council, 1962), and, of course, our files are of great help in treating the obscure case. From our experience, therefore, it would seem reasonable to suggest that, if the number of inquiries increases so much that additional information bureaux are required, these should be set up in the regional poisons centres.

Summary

An analysis has been made of three years' work of the Poisons Information Bureau at Leeds. It shows that out of 1,492 calls, 62.7% relate to children, and that calls made on behalf of children are responsible for the increased number received in late spring and summer. Analyses are made of the materials taken and of the type of callers. Relatives form a very small percentage of callers. A general description of the routine working of the Bureau is given with a discussion of the principles on which calls are answered.

In building up and increasing the information in our files we have received help from many quarters. Pharmaceutical firms and firms engaged in other forms of industry, who are too numerous to mention individually, have freely given us help when required, and we hope they will accept this general acknowledgment of their aid.

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