Infectious hepatitis in Bristol, 1959-70

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Summary

An outbreak of infectious hepatitis occurred in Bristol between January 1960 and January 1961.

Children between the ages of 5 and 10 years were particularly affected.

No association with Down's syndrome, or with immunization procedures, drugs or dental anaesthetics was found.

IN JULY 1959, information was received that thirty-five cases of infectious hepatitis had occurred in a hospital for the severely subnormal just outside Bristol, with three further cases in an associated hospital within the city boundary. This outbreak was apparently controlled with gamma-globulin, although one or two suspicious cases occurred subsequently. At the end of 1959 school welfare officers in Bristol were reporting unusually high absences from primary schools because of 'jaundice'. In January 1960, general practitioners were asked, voluntarily, to inform the medical officer of health of cases of infectious hepatitis, and on 1 December 1960, the disease was made notifiable under Section 147 of the Public Health Act, 1936.

The outbreak reached its peak between October 1960 (148 cases) and January 1961 (136 cases). From July 1961 the incidence rapidly declined, until in December 1962 there were only eight cases.

Annual notifications have since fluctuated from as low as 112 in 1963 to 556 in 1966 and 588 in the

first 9 months of 1970. The percentage of children aged 15 or less notified was 79% in 1960 but only 33.9% in 1963, supporting earlier suggestions (Rowland *et al.*, 1967; Burns, 1967) that when a sufficient proportion of them have been infected either clinically or subclinically and presumably acquired immunity, the incidence of the disease falls to non-epidemic levels. Details are given in Table 1.

Throughout the period of notification, children aged between 5 and 10 years have been particularly affected as can be seen in Table 2. The main concentrations of notifications have been in areas where new housing developments have taken place. Many of the cases are single sporadic cases within families and in only a minority has a further case been notified in the same family. The concentration of cases in areas where there are large numbers of children of primary school age indicates the importance of the school as one agent of the transfer of infection.

There appears to be no evidence of connection with immunization procedures, drugs or dental anaesthetics.

Illnesses have usually been mild and preliminary studies showed that permanent liver damage is seldom a sequel in survivors. Details of the fourteen fatal cases (mortality rate 2.8/1000) in the period are given in Table 3.

There is no evidence to support the reports of an association between infectious hepatitis and Down's

TABLE 1. Secular and age incidence of infectious hepatitis in Bristol

Year	Children (15 or less)		Adults		Total (100%)
	No.	%	No.	%	
1960	906	79.0	241	21.0	1147
1961	738	76.9	222	23.1	960
1962	183	63.5	105	36.5	288
1963	38	33.9	74	66.1	112
1964	63	49.6	64	50.4	127
1965	179	62.2	109	37.8	288
1966	331	59.5	225	40.5	556
1967	305	62.6	182	37.4	487
1968	157	56.5	121	43.5	278
1969	116	53.5	101	46.5	217
1970	350	59.5	238	40.5	588
(to 30/9/70)					

TABLE 2. Notifications of infectious hepatitis in Bristol

Year	Age Group							
	0-4		5-9		10-14		15+	
	No.	%	No.	%	No.	%	No.	%
1960-1	137	6.5	1071	50.8	436	20.7	463	21.9
1966	54	9.7	189	34.0	88	15.8	225	40.5
1967	38	7.8	198	40.6	69	14.2	182	37.4
1968	21	7.6	92	33.1	44	15.8	121	43.5
1969	22	10.1	62	28.6	32	14.7	101	46.5
1970 (to 30/9/70)	39	6.6	206	35.0	105	17.9	238	40.5

syndrome (Stoller & Collmann, 1965; Pantelakis *et al.*, 1970). Bristol's statistics are summarized in Table 4.

Discussion

On 5 June 1968, Circular 20/68 was issued in which the Minister of Health said he was aware of the growing medical opinion that infective jaundice should be made generally notifiable. At that time, jaundice was notifiable in the counties of Bedford, Cambridge, Essex, Hertford, Huntingdon, Norfolk, East and West Suffolk, and in the county boroughs of Great Yarmouth, Ipswich, Norwich, and South-

TABLE 3. Deaths from infectious hepatitis in Bristol

Year	Total deaths			
1960	2	Girl 7 years; man 54 years		
1961	2	Woman 24 years; woman 47 years		
1962	1	Woman 23 years		
1963	1	Man 18 years		
1964	1	Woman 87 years		
1965	1	Woman 79 years		
1966	2	Boy 5 years; boy 5 years		
1967	2	Woman 63 years; woman 86 years		
1968	1	Woman 85 years		
1969	1	Woman 64 years		
1970 (to 30/9/70)	0			

TABLE 4. Infectious hepatitis and Down's syndrome

Year	Birth notifications	Cases of Down's syndrome	Infectious hepatitis notifications
1960	6889	14	1147
1961	7061	3	960
1962	7249	12	288
1963	7640	13	112
1964	7517	14	127
1965	7600	14	288
1966	7301	11	556
1967	7003	9	487
1968	6731	12	278
1969	6462	15	217

FIG. 1. Infective jaundice notification rate/1000 population, Bristol C.B. 1969. Unshaded areas, less than 0.5; stippled areas, 0.5-0.9; hatched areas, 1.0-1.4; cross-hatched areas, 1.5-2.0.

the Minister under Section 143 of the Public Health Act, 1936. In addition, infectious hepatitis was notifiable in about eighty local authority areas under local orders made under Section 147 of the Act.

It was considered that general notification would assist medical officers of health to obtain more precise information concerning the incidence of infective jaundice and the circumstances in which the various forms of this disease were spread. Such information could well lead to useful measures of control. Particular attention, for example, has recently been focused on the transmission of jaundice by the use of contaminated syringes or needles by persons, mainly young adults, who administer drugs intravenously by self-injection, and the occurrences of cases of jaundice has led to the

TABLE 5. Corrected notifications* of infective jaundice, England and Wales, 1968-69

Period	Number of notifications	Notified morbidity/100,000 population	Deaths from infective jaundice	Deaths/100 notifications	Mortality/100,000 population
1968 (1 July-31 Dec.†)	11,579 (10,830)	47.7‡ (47.2)‡	119 (113)	1.0 (1.0)	0.49‡ (1.49)‡
1969	23,582 (21,558)	48.3 (46.8)	208 (188)	0.9 (0.9)	0.42 (0.42)

* Including original notifications from Port Health Districts.

† Figures shown are for two complete quarters.

‡ Equivalent annual rate.

Figures in parentheses are for England and exclude original notifications from Port Health Districts.

detection of foci of drug addiction. For these reasons, the Minister made the Public Health (Infective Jaundice) Regulations, 1968, to come into operation on 15 June 1968.

Corrected notifications of infective jaundice in England and Wales for 1968 to 1969 are set out in Table 5.

Conclusions

Studies in Bristol and Leicester confirm a significant association between high incidence of the disease and domestic over-crowding and poor living standards.

Infectious hepatitis has been described as one of the biggest unsolved problems in medical virology (*British Medical Journal*, 1964). Early claims by W. A. Richtsel and colleagues to have isolated the virus by cell culture from a Bristol patient were not confirmed at the Communicable Disease Centre of the United States Public Health Service at Atlanta, Georgia. The recent report (Ferris *et al.*, 1970) that an antigen particulate and serologically distinct from Australia antigen has been detected in faecal extracts from ninety out of 220 patients with viral hepatitis, and from only five of 158 patients with other diseases, offers hope of further progress.

Acknowledgments

I am glad to acknowledge the help of a number of colleagues in Bristol in the preparation of this paper, especially Dr P. W. Bothwell, Mr G. A. Birch, Dr A. J. Rowland and Miss R. Williams.

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