Letters to the Editor

High incidence of group C streptococci isolated from throat swabs

In 1980 Ghoneim and Cooke[1] reported three cases of septicaemia due to Lancefield group C streptococci. Since then all β-haemolytic streptococcal isolates at the Leeds General Infirmary have been grouped using a rapid latex method.

We have analysed the data for the past five years and have noted an increase in the incidence of group C streptococci among β-haemolytic streptococci from throat swabs. Such a preponderance of group C isolates is higher than that found by other workers.[2–4]

Quinn[2] has noted a fall in the proportion of group A streptococci isolated from throat swabs from school children in Nashville, USA, between 1953 and 1955 (84%) and in 1961–67 (62·6%). Group C streptococci accounted for 16·2% of the β-haemolytic isolates in the second period of study and presumably this figure represents a rise from the previous period of study, where the total of all β-haemolytic streptococci other than group A was 16%.

Several workers have noted a higher proportion of group C streptococci among β-haemolytic streptococci in tropical and sub-tropical countries,[5,6] but there are no reports from temperate regions of a high frequency of group C streptococcal isolates.

Table 1 shows the frequency of group A, B, C, D, F, and G isolates in each complete year 26 March to 25 March from throat swabs received at the Leeds General Infirmary Bacteriology Laboratory. There is an annual variation in the frequency and relative proportion of the different β-haemolytic Lancefield groups. The proportion of group C streptococci, however, rose from 5·2% in 1979–80 to 31·2% in 1981–82 ($p < 0.001$), and although there was a subsequent fall in the proportion of group C isolated in 1983–84, it was still about 20%.

The isolation frequency of each streptococcal group from all sites, including the throat, is shown in Table 2. Both the absolute numbers and the preponderance of group C streptococci are much smaller when all the isolates are considered rather than only the throat isolates.

We have not found a satisfactory explanation for the high incidence of group C streptococci isolated from throat swabs. There has been no change in the method of Lancefield grouping and little change in the specialties or practices served by the laboratory over the last five years.

We would be interested to see reports of the incidence of group C streptococcal isolates at other laboratories, because there appears to have been a genuine rise in the incidence of group C streptococcal isolates from throat swabs in this area.

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Table 1 *Frequency of β-haemolytic streptococcal throat swab isolates in each complete year 26 March to 25 March*

	Year				
Group	*1979–80 (%)*	*1980–1 (%)*	*1981–2 (%)*	*1982–3 (%)*	*1983–4 (%)*
A	51 (66·2)	37 (40·6)	37 (46·2)	30 (44·1)	70 (50·3)
B	5 (6·5)	22 (24·2)	8 (10·0)	11 (16·2)	14 (10·1)
C	4 (5·2)	20 (22·0)	25 (31·2)	19 (27·9)	27 (19·4)
D	1 (1·3)	0 (0)	1 (1·25)	0 (0)	3 (2·1)
F	7 (9·1)	3 (3·3)	3 (3·75)	0 (0)	5 (3·6)
G	9 (11·7)	9 (9·9)	6 (7·5)	8 (11·8)	20 (14·4)
Total	77 (100)	91 (100)	80 (100)	68 (100)	139 (100)

Table 2 *Frequency of β-haemolytic streptococcal isolates from all sites*

	Year				
Group	*1979–80 (%)*	*1980–1 (%)*	*1981–2 (%)*	*1982–3 (%)*	*1983–4 (%)*
A	114 (37·2)	131 (27·8)	128 (23·4)	115 (22·8)	139 (27·9)
B	55 (18·0)	162 (34·4)	191 (34·7)	194 (38·5)	147 (29·5)
C	29 (9·5)	49 (10·4)	52 (9·5)	66 (13·1)	61 (12·2)
D	20 (6·6)	33 (7·0)	52 (9·5)	27 (5·4)	48 (9·6)
F	14 (4·6)	10 (2·1)	20 (3·6)	22 (4·4)	18 (3·6)
G	74 (24·2)	86 (18·2)	104 (19·0)	80 (15·9)	85 (17·1)
Total	306 (100)	471 (100)	547 (100)	504 (100)	498 (100)

References

[1] Ghoneim ATM, Cooke EM. Serious infection caused by Group C. Streptococci. *J Clin Pathol* 1980;**33**:188–9.
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[4] Hutchinson RI. Pathogenicity of Group C (Lancefield) Haemolytic Streptococcus. *Br Med J* 1946;ii:575–6.
[5] El Kholy A, Sorour AH, Houser HB, *et al.* Three year prospective study of Streptococcal infections in a population of rural Egyptian schoolchildren. *J Med Microbiol* 1973;**6**:101–10.
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Biphenotypic leukaemia in treated Hodgkin's disease

The finding of leukaemias which involve more than one cell lineage has implications both for treatment and for understanding the pathogenesis of leukaemia. The risk of acute leukaemia in patients treated with chemotherapy alone or in combination with radiotherapy is well recognised.[1–3] Most of these leukaemias are acute myeloid leukaemias, although some rare lymphoid cases have been described.[3,4] Prentice *et al*[5] reported the first case where there was a mixture of two distinct populations of lymphoid and myeloid blast cells present after treatment for Hodgkin's disease.

We recently saw a patient who developed acute leukaemia after chemotherapy for Hodgkin's disease. A 50 year old woman presented in April 1981 with stage IV B nodular sclerosing Hodgkin's disease and was treated with six courses of MOPP and four of ABVD. Because she developed severe pan-