Gonorrhoea in women in Scotland

Evidence of cohorts having a higher or lower incidence than expected

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SUMMARY Incidences of genital gonorrhoea in women higher or lower than expected occurred in patients aged 15-19 years four years after similar findings in those aged 10-14 years. This pattern was followed five years later in those aged 20-24, 11 years later in those aged 25-34, and 20 years later in those aged 35-44 years. Thus, cohorts of women at greater or lesser risk of acquiring gonorrhoea appear to exist. Most cohorts with a high incidence could be identified when in the 10-14 age group. Especially high rates of infection are predicted in the 25-34 age group in the mid-1980s and in the 35-44 age group in the late 1980s. These findings will affect the timing of health education on sexually transmitted diseases in schools and will demand a high degree of awareness among general practitioners, gynaecologists, and those working in family planning and well-women clinics of the possibility of gonorrhoea occurring in women in these age groups.

Introduction

In a review of sexually transmitted diseases in Scotland between 1972 and 1975 Schofield and McNeil (1977) found a sustained increase in the reported incidence of genital gonorrhoea in women aged 20-24 years (from 333 to 393 per 100 000). Later Schofield (1977) warned that a cohort of promiscuous women born in the mid-1950s might exist. Schofield and McNeil (1977) also noted that over the same period the reported incidence among girls aged 15-19 years had decreased (from 309 to 250 per 100 000). It was, therefore, surprising that in 1976 the incidence rose to 290 per 100 000.

Further study of the incidence of genital gonorrhoea by age groups showed that four years previously in 1972 the incidence among girls under 15 years had risen to 2 per 100 000 compared with 1 per 100 000 for the years 1970, 1971, 1973, and 1974. If the average age of the 15-19 age group was 18 years (it was 17.8 years in Glasgow), and most girls under 15 were aged 14, the possibility of a cohort at special risk of acquiring gonorrhoea had to be considered. For the years 1967 to 1970 the reported incidence of genital gonorrhoea among girls aged 15-19 had risen from 100 to 185 per 100 000, five years before the rise

already occurring in the 20-24 age group. This led to further examination of the reported incidence of genital gonorrhoea and of the population by age groups of women in Scotland for the years 1950 to 1977 inclusive.

Methods

The annual number of cases of genital gonorrhoea by age groups were obtained from the Scottish summaries of the quarterly returns (ISD(D)5) submitted by the special clinics to the Scottish Home and Health Department. The age groups 35-44 years and 45 and over were not separated in the quarterly returns until 1956, and the age groups 15-19 and 20-24 years not until 1966. The annual number of cases within the age groups before separation nationally have been estimated from attendances at the Glasgow clinics, where such information was available from 1950 onwards and trends closely followed those in Scotland as a whole.

Information on the number of women by age in Scotland from 1950 to 1977 was kindly provided by the Registrar General for Scotland (personal communication). The annual incidence of genital gonorrhoea in women by age groups is reported in rates per 100 000. The incidence in women aged 45 and over was so low (2.3 per 100 000) that they have not been included. Instead of rates per 100 000 of those under 15 years being used as published the

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more realistic rates per 100 000 of those aged 10-14 are quoted. (Discussion with colleagues showed that none of the cases occurred in patients under 10 years.)

Results

In addition to the rate of six per 100 000 noted in the 10-14 age group in 1972, similarly high rates occurred in this age group in 1954, 1958, and between 1967 and 1969 (Fig. 1). They were followed at intervals by similar peaks in all the age groups—four years later in those aged 15-19, nine years later for those aged 20-24, and 15 years later for those aged 25-34. In the 15-19 age group high rates in 1951 and 1953 were followed by high rates in the subsequent age groups at the same intervals as above and 20 years later in the 35-44 age group while high rates between 1966 and 1968 preceded those in the 20-24 age group from 1971 to 1973 and in the 25-34 age group in 1977.

Lower rates of increases less than in the adjacent years were noted in the 15-19 age group in 1959 (four years after a rate of only one per 100 000 in the 10-14 age group) 1964, and 1969 and were followed by similar patterns in the subsequent age groups. Low rates also occurred in the 25-34 age group in 1955 and in the 35-44 age group in 1964.

The years when a higher and when a lower incidence of genital gonorrhoea than expected in the various age groups has been recorded or is projected up to 1990 are shown in Tables 1 and 2 respectively.

Estimates of variation in caseload require a knowledge of the size of population at risk in addition to the incidence. The years when large or small populations have moved through the age groups or are projected to do so are shown in Table 3. In Scotland the postwar 'bulge' of female live births was greatest in 1948 and has increased the population of the age groups as follows: those aged 10-14 in 1961 (13 years ahead), those aged 15-19 in

Figure Genital gonorrhoea in women in Scotland (1950-77).

Table 1 *Years of recorded and projected higher incidences in the age groups*

Years of birth	Years of higher incidence in the age groups				
	10-14	15-19	20-24	25-34	35-55
1924				1953	1962
1933		1951	1956	1962	1971
1935		1953	1958	1964	1973
1940	1954	1958	1963	1969	1978
1944	1958	1962	1967	1973	1982
1948		1966	1971	1977	1986
1950		1968	1973	1978	1988
			1976	1979	
1953	1967	1971	1977	1982	
1955	1969	1973	1978	1984	
1958	1972	1976	1981	1987	
1961	1975	1979	1984	1990	

Table 2 *Years of recorded and projected lower incidences in the age groups*

Years of birth	Years of lower incidence in the age groups				
	10-14	15-19	20-24	25-34	35-44
1926				1955	1964
1941	1955	1959	1964	1970	1979
1946	1960	1964	1969	1975	1984
1951	1965	1969	1974	1980	1989
1962	1976	1980	1985		

Table 3 *Years of recorded and projected large and small populations in the various age groups*

Years of birth	Population size	Age groups				
		10-14	15-19	20-24	25-34	35-44
1922	Large				1954	1964
1939	Small	1952	1957	1962	1971	1981
1948	Large	1961	1966	1971	1980	1990
1952	Small	1965	1969	1974	1983	
1964	Large	1977	1981-2	1986-7		

1966 (18 years ahead), and those aged 20-24 in 1971 (23 years ahead). Thus from the study of previous trends, the increase in population will occur in the 25-34 age group in 1980 (32 years ahead) and in the 35-44 age group in 1990 (42 years ahead). A previous large population was born about 1922 and a small one in 1939. Between 1948 and 1952 the number of live births fell by 13% while in the following 12 years to 1964 the number rose by 17%. A steady decline in the number of live births occurred between 1964 and 1976 but was less pronounced the following year, so that by 1977 there were 35% fewer births than in 1964.

Discussion

Irrespective of whether the incidence of genital gonorrhoea in women was higher or lower than expected, the intervals between the increase or decrease becoming apparent in age groups was always four years between those aged 10-14 and 15-19 years, five years between the 15-19 and 20-24 age groups, six years between the 20-24 and 25-34 age groups, and nine years between those aged 25-34 and 35-44 years. This points to cohorts of women at greater or lesser risk of acquiring gonorrhoea during their years of sexual activity.

Most cohorts could be identified as early as in the 10-14 age group. Cohorts of women with high rates followed six of the 10 occasions when there was an incidence of 4 or more per 100 000 in those aged 10-14 years while one cohort with low rates followed the occasion when the incidence was only 1 per 100 000. Thus, by this time these girls will have been exposed to influences whose effects would govern their sexual lives. What these influences are, why their effects should differ almost from one year to the next, and when they affect the cohort is not as yet apparent, but they certainly warrant further investigation and research. These findings will influence the time when health education on sexual intercourse and sexually transmitted diseases should be provided in schools. Possibly children require education on their sexual responsibilities even in primary school or at the latest in the first two years of secondary education. One cohort with a high incidence rate was not detected until the girls were aged 15-19 years between 1966 and 1968 and may have been subject to different influences at a later date, but the high incidence has continued into the 25-34 age group in which it can be predicted to produce a rate of about 200 per 100 000 by 1979.

The times taken for large or small populations to move from one age group to the next differed from those taken for groups with high or low rates of genital gonorrhoea, possibly reflecting differences in the amount of sexual activity in the various age groups.

From considerations of the combined effects of the projected variations on the incidence of genital gonorrhoea in women (expressed as rates per 100 000) and changes in population size by age, it is possible to predict when relatively large or small numbers of

cases of gonorrhoea will occur over the next decade or so and within which age groups they will fall.

The number of cases of gonorrhoea within the 10-14 age group is predicted to fall steadily until 1990 at least, while that in the 15-19 age group can be expected to rise to a maximum in 1979 and then decline by 1982; the incidence will then decline for a least 12 years. The number of cases in the 20-24 age group are likely to increase considerably until 1984, especially in 1978 and 1981; after 1984 it will fall moderately until 1987 and thereafter more sharply until 1990. The number of cases of genital gonorrhoea in the 35-44 age group can be expected to rise in 1978 then fall sharply until 1981. From then on a pronounced increase in the number up to 1986 to 1988 will occur, after which there will be a moderate decline until 1990.

If these predictions are confirmed and there is an increased incidence of gonorrhoea in the various age groups in the years ahead they will have implications for those providing health care as well as for those working in special clinics. General practitioners, gynaecologists, those working in well-women and family planning clinics, and others concerned with primary medical care will need to have a high index of suspicion of the possibility of gonorrhoea occurring in the older age groups as well as in teenagers and those in their early 20s, already recognised as being at special risk. In the 1980s those aged 25-44 will also be at special risk.

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