Decrease in incidence of women treated in hospital for acute salpingitis in Sweden

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SUMMARY Numbers of women discharged from hospital after being treated for acute salpingitis decreased by 40% in Sweden between 1974 and 1984. Several factors argue that this decrease was real, rather than a shift from inpatient to outpatient treatment. (Outpatients here include those treated by general practitioners as well as at hospital outpatient clinics.) The decrease was nation wide and included all age groups. Repeat episodes of the disease decreased more than first episodes. The main reason for the decrease seems to be more strict attitudes to sexual relationships, especially in young people. Public and professional awareness of genital chlamydial infections was probably a contributing factor.

Acute salpingitis, which is synonymous with pelvic inflammatory disease (PID), is caused by micro-organisms that ascend from the lower genital tract. During the 1960s and 1970s 60–80% of cases of salpingitis in women aged under 25 were caused by sexually transmissible organisms, such as Neisseria gonorrhoeae and Chlamydia trachomatis.

Reflecting the worldwide epidemic of sexually transmitted diseases (STDs), the incidence of PID has increased in most countries. Most women attending Swedish hospitals with PID are treated as inpatients, though a constant 20% are not. In Sweden the annual incidence of gonorrhoea peaked in 1970 and decreased appreciably thereafter. In hospitals in southern Sweden admissions for acute salpingitis increased to 1977 and then decreased. The present investigation was performed to verify a nationwide decrease in salpingitis in Sweden.

METHODS

In early 1986 all 53 departments of gynaecology in Sweden were asked for the following information: numbers of women discharged from hospital after being treated for acute salpingitis in the years 1959, 1964, 1969, and yearly from 1974 (diagnoses were to include acute salpingitis (International Classification of Diseases (9th revision) (ICD-9) number 612 09), gonorrhoea associated salpingitis (098 11), and “unqualified” acute salpingitis (614 99) (before 1968 the ICD-8 numbers were 622, 030, and 623 respectively); and any changes in geographical catchment area, reporting systems, or major administrative changes since 1959.

Demographic information on the female population of Sweden was obtained from Statistical abstracts of Sweden (annual reports). The detailed information for the city of Lund was obtained from the continuing study of acute salpingitis that has been undertaken since 1960 at the department of gynaecology in this city. Routine diagnostic tests for genital chlamydial infection started in Lund in 1977.

RESULTS

Information on hospital discharge rates for PID was obtained from 40 of the 53 hospitals, which were evenly distributed throughout the population. Of the reporting hospitals, 16 were comparable in having unchanged geographical catchment regions and clinical routines since 1959, a further nine since 1964, nine more since 1969, and a final six since 1974. In 1974–84 the 16, 25, 34, and 40 hospitals cared for about 30%, 50%, 60%, and 75%, respectively, of the female population of Sweden. Their yearly discharge numbers for every fifth year from 1969 to 1984 are given in figure 1. As can be seen, the numbers of patients with salpingitis treated in those hospitals increased to 1974 and showed a pronounced decrease after 1979. In the

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40 hospitals that cared for about 75% of the total female population, the discharge numbers for PID fell from 4108 in 1974 to 2479 in 1984—a decrease of 40% of the 1974 figure.

Figure 2 gives the yearly discharge numbers for salpingitis from 1974 onwards from 25 hospitals providing such information. The yearly discharge numbers fell from 3306 in 1978 to 1745 in 1983—a 47% decrease in four years. The number of women aged 15 to 24 (the high risk ages for PID) increased slightly from 546 500 in 1975 to 574 700 in 1985.

Table 1 shows that the proportion of patients reported as having salpingitis associated with gonorrhoea peaked in 1969 at 25% of women with salpingitis, and decreased to about 5% in 1984.

Figure 3 shows the increase in salpingitis from 1969 to 77 despite the decrease in gonorrhoea after 1970.

Table 2 shows the age specific incidence of women treated in hospital for laparoscopically verified acute salpingitis in the city of Lund. The table shows that: the decrease was proportionally the same in all age groups, gonorrhoea associated disease decreased more than both the total incidence and that of chlamydial salpingitis, and chlamydia associated salpingitis is also decreasing.

Figure 4 shows that during the last two five year periods, the decrease in incidence of repeat episodes of salpingitis (by a factor of 6.5) was greater than the decrease in first episodes of the disease (by a factor of 2).

Figure 5 shows the calculated cumulative numbers (per 1000 women in each of five birth cohorts) of first episodes of salpingitis based on the data from Lund. The calculated cumulative numbers of such infections per 1000 women by their 20th birthday showed small differences in the birth cohorts of 1945, 1950, 1955, and 1960, whereas an appreciable decrease was seen in the 1965 birth cohort.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Percentage of cases of salpingitis in Swedish hospitals diagnosed as being associated with gonorrhoea (ICD-9 098.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>34</td>
<td>20</td>
</tr>
<tr>
<td>40</td>
<td>15</td>
</tr>
</tbody>
</table>

Fig 2  Yearly numbers of women treated for acute salpingitis and discharged from 25 hospitals in 1974–84, and numbers of women aged 15 to 24 in Sweden in 1975–85.
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Table 2  Age specific mean incidence (per 1000 women and per year) of women treated in hospital for acute salpingitis, verified by laparoscopy, in Lund during five year periods 1960–84

<table>
<thead>
<tr>
<th>Age group</th>
<th>Type of salpingitis</th>
<th>1960–64 (n = 382)</th>
<th>1965–69 (n = 478)</th>
<th>1970–74 (n = 713)</th>
<th>1975–79 (n = 708)</th>
<th>1980–84 (n = 329)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15–19</td>
<td>Total</td>
<td>16.0</td>
<td>17.0</td>
<td>16.0</td>
<td>18.2</td>
<td>7.8</td>
</tr>
<tr>
<td></td>
<td>Gonococcal</td>
<td>9.0</td>
<td>7.7</td>
<td>3.9</td>
<td>3.3</td>
<td>0.4</td>
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<tr>
<td></td>
<td>Chlamydial</td>
<td>7.0</td>
<td>9.3</td>
<td>12.1</td>
<td>14.9</td>
<td>5.4</td>
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<tr>
<td>20–24</td>
<td>Total</td>
<td>7.5</td>
<td>10.8</td>
<td>14.2</td>
<td>12.6</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>Gonococcal</td>
<td>1.8</td>
<td>2.4</td>
<td>2.5</td>
<td>1.5</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Chlamydial</td>
<td>5.7</td>
<td>8.4</td>
<td>11.7</td>
<td>11.1</td>
<td>5.2</td>
</tr>
<tr>
<td>25–29</td>
<td>Total</td>
<td>3.5</td>
<td>4.5</td>
<td>8.2</td>
<td>6.5</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>Gonococcal</td>
<td>0.7</td>
<td>1.0</td>
<td>1.3</td>
<td>0.4</td>
<td>0.4</td>
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<tr>
<td></td>
<td>Chlamydial</td>
<td>2.8</td>
<td>3.5</td>
<td>6.9</td>
<td>6.1</td>
<td>2.8</td>
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<tr>
<td>30–34</td>
<td>Total</td>
<td>3.2</td>
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<td>4.3</td>
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<tr>
<td></td>
<td>Gonococcal</td>
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<td>0.4</td>
<td>0.4</td>
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<td></td>
<td>Chlamydial</td>
<td>1.5</td>
<td>1.1</td>
<td>1.9</td>
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<td>0.7</td>
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<tr>
<td>35–39</td>
<td>Total</td>
<td>1.9</td>
<td>1.8</td>
<td>1.7</td>
<td>3.4</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>Gonococcal</td>
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<td>0.3</td>
<td>0.2</td>
<td>0.3</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Chlamydial</td>
<td>0.2</td>
<td>0.5</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
</tbody>
</table>


Discussion

In 1956 the Swedish parliament passed a law on a general public health care and insurance system. In essence, the community administers and cares for all hospitals. Hospital treatment is free to patients at their regional hospitals (that is, the hospital in the patient catchment region where they are registered). Outpatient treatment is provided at a low cost. These basic background factors were unchanged during the period covered by this analysis.

Because of urbanisation during the sixties and seventies, new hospitals were built and the patient catchment regions of some old hospitals were changed. Such changes had to be accounted for in the analysis. Because patients are obliged to attend only their "own" hospitals, the comparisons were made between hospitals with unchanged patient catchment areas and clinical routines, which explains the distribution of reporting hospitals in figure 1. All hospitals reported the same general pattern of increase, peak, and decrease irrespective of the proportions of laparoscopically verified diagnoses, whether they were in a rural or urban area, or their geographical location. The proportional peak in gonorrhoea associated PID coincided with the peak in uncomplicated gonorrhoea. The reported maximum figure of 25%, however, was likely to be an underestimate because several hospitals reported no diagnoses of gonorrhoea associated PID (ICD-9 code 908.11), probably by separating the diagnosis of gonorrhoea (098.00) from that of salpingitis (612.09). In urban hospitals reporting the diagnoses coded 098.11, peak rates of about 50% were reported in 1969 decreasing to about 5% in 1984—a tenfold decrease.

It is noteworthy that the 1950 birth cohort of women, which showed the highest cumulative numbers of first episodes of PID (figure 5), passed through the peak of the STD epidemic in Sweden13 at the ages of 15 to 24—that is, at the high risk ages for salpingitis. In summary, the decrease in total hospital discharge numbers for salpingitis in Sweden was significant and nationwide.

In Sweden most women traditionally attend (or are referred to) hospitals if acute salpingitis is suspected or diagnosed. Most of these women are treated as inpatients, though about 20% are not. In Lund in 1960–77, 79% of all women with PID were treated in...
acute salpingitis cases is not increased in Sweden. The following facts are appreciable.

The incidence of gonorrhoea, chlamydial infection, and PID in Sweden has decreased since 1970. This decrease is likely due to increased awareness, more effective treatment, and changes in sexual behavior. The decrease in PID cases is also likely due to the decrease in gonorrhoea and chlamydial infection.

Although the proportion of chlamydial infection cases among PID cases has increased, this is not necessarily due to a decrease in chlamydial prevalence. The decrease in PID cases is likely due to the decrease in gonorrhoea and chlamydial infection, which are the primary causes of PID.

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Although several sociological studies have been published about sexual knowledge, attitudes, and behaviour in young people during the past 20 years, it is difficult to document such changes. This is mainly because the studies have differed in their aims, study populations, and methodology. Some data seem to be comparable, however. In 1986, for example, 83% of men and 78% of women aged 18 to 19 reported that they had not had sexual intercourse during the month before the interview;14 in 1967 the corresponding figures were 36% for both sexes.15 In 1986 15% of men and 11% of women aged 18 to 24 reported having had more than one sexual partner during the previous six months;14 in 1971,16 the corresponding figures for 18 to 19 year olds were 47% for men and 20% for women during the previous 12 months.16 Of married people, 2% reported having had extramarital sexual relationships during the previous six months in 1986,14 whereas the same percentage had reported such relations during the previous month in 1967.15

Brorsson stated "compared with earlier studies specifically aiming at studying sexual behaviour, this study (of knowledge about the acquired immune deficiency syndrome (AIDS)) showed significantly lower sexual activity".14 Professionals working in the field of STDs and with young people agree with this statement. Public awareness of AIDS might to some extent have changed sexual behaviour, at least during the past few years.14 This awareness, however, came too late to explain the decrease in gonorrhoea after 1970, in chlamydial infections after 1980, and in salpingitis after 1978. Available information makes it likely that the most important reason for the decrease in STDs that produce salpingitis and in salpingitis was the combined effects of a decrease in the average number of partners and increased medical and public awareness of genital chlamydial infections. The observed decrease in PID in Sweden probably also predicts corresponding decreases in other countries.

References

9 Centers for Disease Control. Sexually transmitted diseases treatment guidelines. MMRW 1982;31:43–4S.
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Genitourin Med 1988 64: 59-63
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