Notification of tuberculosis in patients with AIDS

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Abstract

Background In the early 1990s cases of tuberculosis in people with HIV infection and AIDS were undernotified. A study to evaluate changes in notification rates in two inner London local authorities was undertaken for the period January 1993–June 1996 inclusive.

Methods For residents of the two local authorities, tuberculosis notifications were identified using a local database, and cases of AIDS with a recorded diagnosis of tuberculosis were identified from AIDS case reports.

Results During the study period, only 13 (32 per cent) of the 41 AIDS cases with a recorded diagnosis of tuberculosis were also notified as a case of tuberculosis. However, the proportion of notified cases rose from 0 per cent (0 of 11) in 1993 to 50 per cent (5 of 10) in 1995 and 63 per cent (5 of 8) in early 1996.

Conclusion The increase in the tuberculosis notification rate for people with AIDS is encouraging, but scope for improvement remains.

Keywords: AIDS, HIV infection, tuberculosis, notification

Introduction

Tuberculosis is a notifiable disease, and is reported in a standard format to the proper officer of the local authority in which the patient resides. Notification of tuberculosis is an essential step in the control of the disease and in the assessment of local and national incidence. However, previous studies have identified notification rates varying from only 60 per cent¹ to 82 per cent² for tuberculosis occurring in the general population. In 1990–1991 it was estimated that only 40 per cent of cases of HIV-related tuberculosis were notified in an inner London health authority.³

Balogun et al. estimated the tuberculosis notification rate for AIDS patients resident in two inner London local authorities between 1986 and 1992 to be only 6 per cent.⁴ It was decided to repeat this study, in the same local authorities and using the same technique, to monitor progress towards the more complete notification of disease in patients with AIDS.

Methods

Using a local tuberculosis notifications database, notifications of tuberculosis in residents of the two inner London local authorities were identified for the period January 1993–June 1996 inclusive. Name, gender and date of birth or age were extracted from the notification details. Surnames were coded using the Soundex method.

AIDS case reports, which record information on the AIDS-diagnosing condition(s) and illnesses experienced within a month of diagnosis, are completed and returned to the Public Health Laboratory Service (PHLS) AIDS Centre on a voluntary basis. Extrapulmonary tuberculosis has been considered an AIDS-diagnosing condition since the 1980s. Pulmonary tuberculosis was designated an AIDS-diagnosing condition as of January 1993, but information on this condition was recorded on the form before that time. Soundex of surname, first initial, date of birth, gender, local authority, and reported conditions and illnesses are among the items entered onto a database after deduplication and verification.

AIDS cases resident in the two local authorities, reported during the study period, in whom tuberculosis had been diagnosed at, or within one month of, the diagnosis of AIDS were matched by Soundex of surname, first initial, gender and date of birth to the cases from the local tuberculosis notifications database. In those notifications where date of birth was unavailable, an estimated year of birth (EYB) was calculated by subtracting age from year of notification, and to maximize the yield the matching process was then repeated three times using EYB, EYB - 1 and EYB + 1 as the possible year of birth. In addition, all AIDS reports on residents of the two local authorities made during the study period were hand searched, to identify diagnoses of tuberculosis that had been made beyond one month of the diagnosis of AIDS but within the study period.
Table 1 Characteristics of the 41 cases in which tuberculosis was recorded in the AIDS case report (with percentages given in parentheses)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>49</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>34 (83)</td>
</tr>
<tr>
<td>Female</td>
<td>7 (17)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>26 (64)</td>
</tr>
<tr>
<td>Black – African</td>
<td>7 (17)</td>
</tr>
<tr>
<td>Black – Caribbean</td>
<td>3 (7)</td>
</tr>
<tr>
<td>Other</td>
<td>5 (12)</td>
</tr>
<tr>
<td>Risk category for AIDS</td>
<td></td>
</tr>
<tr>
<td>Sex between men</td>
<td>21 (51)</td>
</tr>
<tr>
<td>Injecting drug user</td>
<td>6 (15)</td>
</tr>
<tr>
<td>Sex between men and women</td>
<td>14 (34)</td>
</tr>
</tbody>
</table>

Results

The combined population of the two authorities was 349,165 (0.7 per cent of the population of England and Wales, based on Office of National Statistics mid-1995 population estimates). Among residents of the two authorities, 459 cases of tuberculosis were notified (2.3 per cent of the total for England and Wales) and 530 cases of AIDS were reported (9.4 per cent of the total for England and Wales) during the study period.

The diagnosis of tuberculosis was recorded in 41 of the AIDS case reports from the two authorities. There were 23 cases of pulmonary tuberculosis and 18 cases of extrapulmonary tuberculosis. The median time between the diagnosis of AIDS (which may have been retrospective) and the completion of an AIDS case report was five months. Tuberculosis was the AIDS-diagnosing condition in 39 of the 41 cases. In the remaining two cases the time between the diagnosis of AIDS and the diagnosis of tuberculosis was five and nine months, respectively. The key characteristics of the 41 cases are summarized in Table 1.

Only 13 (32 per cent) of the 41 AIDS cases with a recorded diagnosis of tuberculosis were also notified as a case of tuberculosis. However, the proportion of notified tuberculosis cases rose from 0 per cent (0 out of 11) in 1993 to 63 per cent (5 out of 8) in the first half of 1996, as summarized in Table 2.

Discussion

The study revealed an overall notification rate for cases of tuberculosis in AIDS patients of only 32 per cent, although this figure rose from 0 per cent to 63 per cent during the study period.

Tuberculosis is the most common opportunistic infection and the leading cause of death in persons infected with HIV world-wide, and the HIV pandemic has made a major contribution to the rapid increase in the incidence of tuberculosis in the developing world. Although the impact of HIV infection on the frequency of tuberculosis in the United Kingdom has been considered small because of the limited overlap in affected populations, the impact is likely to increase. The presence of HIV-infected patients in health care settings where cases of active tuberculosis can be found and sometimes transmitted, and the fact that they are at greater risk of developing active disease themselves, has already led to two London hospital based outbreaks of tuberculosis in which all cases were in HIV-seropositive people. Immigration from countries in which both HIV infection and tuberculosis are prevalent may also increase the overlap. Finally, if under-notification of tuberculosis in the HIV-infected population continues, critical contact tracing may not take place, allowing more transmission.

Although there is no evidence that HIV-infected individuals with tuberculosis are more infectious than HIV-negative persons, tuberculosis is one of the few HIV-related infections that is communicable to other HIV-negative individuals. The emergence of multidrug resistant tuberculosis (resistant to isoniazid and rifampicin, with or without resistance to other drugs) poses additional problems. The tendency toward delayed diagnosis, delay in recognition of drug resistance and poor response to treatment all contribute to patients remaining infectious for long periods. This increases the risk of transmission to contacts, and outbreaks caused by multiresistant strains have been reported both overseas and more recently in London. These have mainly affected patients infected with...
HIV, but health care workers have also been affected irrespective of their HIV status.10

Reporting delay may have affected the results of this study, but the effects are unlikely to be great. As the median time between the diagnosis of AIDS and the completion of an AIDS case report was five months, and with tuberculosis constituting the AIDS-diagnosing condition in the majority of cases, one or two notifications of tuberculosis may have been made in the latter period of 1992 in patients for whom an AIDS case report was not completed until early 1993. This would have the effect of slightly underestimating the notification rate in 1993, but would not have affected the rate in subsequent years. The matching exercise was also hampered by the absence of a date of birth from many notifications, and dependent upon the accuracy of the Soundex coding of patient surnames. Despite these reservations, however, the overall trend and resulting conclusions remain valid.

Under the Public Health (Control of Disease) Act 1984 and the Public Health (Infectious Diseases) Regulations 1988, all cases of tuberculosis must be notified. Clinicians working in genito-urinary medicine, and others with a role in the management of HIV infection, are not exempt from the requirement to notify tuberculosis. The obligation for these groups to notify has been made perfectly clear in the British Thoracic Society guidelines on the management of tuberculosis and HIV infection13 and a recent communication from the Deputy Chief Medical Officer.14

The marked improvement in the notification rate for tuberculosis in patients with AIDS in the study area is encouraging. This has been largely attributed to the appointment of clinical nurse specialists in the two major acute hospitals in the area, with specific responsibility for the notification of cases of tuberculosis, including those associated with HIV infection.15 These clinical nurse specialists also play a key role in the tracing of contacts of such cases, and in reassuring clinical colleagues that there will be no breach of patient confidentiality. However, there is certainly scope for further improvement. The tracing and investigation of contacts in the community is usually prompted by the receipt of a notification, and local arrangements to ensure the notification of tuberculosis in all patients need to be in place to facilitate this process, and to ensure that the full extent of the association between HIV infection and tuberculosis in this country is established.

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References


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