Antenatal screening for HIV; are those who refuse testing at higher risk than those who accept testing?

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Abstract

Background The UK Department of Health recommends that all pregnant women are offered screening for infection with human immunodeficiency virus (HIV) and had encouraged maternity units to achieve uptake targets of 90 per cent by the end of 2002. Many maternity units fail to meet this target and there is concern that those women who are still refusing testing may include a higher proportion of women at high risk of infection. In consequence, those infected with HIV are not being identified and are not receiving the antiviral treatment, which would be of benefit to them and reduce the risk of transmission of HIV to their babies.

Methods A retrospective audit of HIV screening uptake in women who were found to be infected with hepatitis B virus (HBV) and in those who were not infected with HBV was carried out in order to explore further the characteristics of ‘acceptors’ and ‘refusers’ of HIV screening.

Results The overall uptake rate of HIV screening in the West Midlands population served by the National Blood Service was 60 per cent in 2001 and 74 per cent in 2002. The prevalence of HBV infection was found to be twice as high (0.39 per cent) in those who had refused an HIV test compared with those who had accepted a test (0.21 per cent) (p = 0.022).

Conclusions There is good evidence that women refusing HIV antenatal screening have a higher prevalence of another blood-borne virus, indicating clearly that further effort must be made to increase the screening uptake and fully integrate HIV screening with other antenatal tests.

Keywords: HIV, antenatal screening, blood-borne viruses, hepatitis B, prevalence of infection

Introduction

Studies of unlinked anonymous testing and named patient testing have consistently shown that not all human immunodeficiency virus (HIV)-infected women giving birth to babies in the United Kingdom are aware of their status.1,2 In recognition of this, the Department of Health recommended that all pregnant women are offered screening for infection with HIV and had set targets of 50 per cent uptake by the end of 2001 and 90 per cent by December 2002.3

Antenatal screening for HIV was added to the National Blood Service antenatal-screening package in April 2000. From the start of the service the uptake of antenatal testing for HIV has been carefully monitored.4 The 14 maternity units, which use the service offered by the Birmingham Blood Centre, introduced testing between April 2000 and April 2001 and by the end of 2001 had achieved the first target of 50 per cent uptake. Midwife education programmes and gradual acceptance of the service has been reflected in a rise in uptake. However, a steady state of 75 per cent overall across the West Midlands was reached during 2002 with no further overall increase in average uptake.

It may be difficult to achieve testing uptake levels as high as 90 per cent while still adhering to the concept of ‘informed choice’. However, there is concern that the ‘one in four’ women who are still refusing testing may include women who are most at risk. Therefore, those infected with HIV are not identified and are in consequence not receiving antiviral treatment, which would be of benefit to them and reduce the risk of transmission of HIV to their babies. Studies have shown that the major reason for refusing testing is that women do not consider themselves at risk of infection,5 however, these assumptions are often based on a poor understanding of HIV.6

The Birmingham Blood Centre offers an antenatal screening for blood group serology, syphilis, hepatitis B and HIV infection and for immunity to rubella to most of the maternity units in the West Midlands region of England. The question is – are those refusing HIV testing at higher risk of infection? This will eventually be established retrospectively by examining the results of the anonymous testing of ‘dried blood spots – Guthrie card samples’ carried out by the Communicable Disease Surveillance Centre.2 However, the results of these surveys are not available till more than a year later.

We looked for a way of examining the characteristics of our ‘acceptor’ and ‘refuser’ populations without taking the step of...
anonymously retesting all samples. Hepatitis B screening uptake in this population is almost 100 per cent and so the difference in HIV ‘acceptors’ and ‘refusers’ was explored by examining the hepatitis B virus (HBV) prevalence in each group.

Subjects, methods and results

By the end of 2002 the 14 maternity units had achieved an average uptake of 74 per cent, with only one unit ever exceeding 90 per cent, five between 80 and 90 per cent, six between 70 and 80 per cent and two within the range 60–70 per cent.

In 2001 (testing uptake 60 per cent) the HIV sero-prevalence was 0.064 per cent (19/29 470) and in 2002 (testing uptake 74 per cent) the sero-prevalence was 0.083 per cent (29/34 916) suggesting that as we screened more women we were including more at higher risk (Table 1).

Thirty of the HIV-infected women were recent immigrants to this country from Africa, but the rest were UK born (Afro-Caribbean, 12; Caucasian, two; others, four). Most have been residents of Birmingham [39/48 (81 per cent)]. An examination of the uptake of testing across the population according to ethnic group showed an overall increase in the uptake in all ethnic groups. Table 2 shows the improvement in testing uptake according to ethnic group in September 2001 and September 2002. However, these overall figures are affected by variations in the spread of immigrant groups across the West Midlands with fewer patients in these groups in the rural areas. These data did not reveal a direct relationship between ethnic origin and accepting or refusing the HIV test.

Between July and December 2002, 24 069 women were tested for hepatitis B and 61 (0.25 per cent) were positive. The records of the HBV-positive women were checked for evidence of accepting and refusing an HIV test. The prevalence of HBV in those accepting an HIV test was 0.21 per cent (38/18 218), but was 0.39 per cent (23/5851) in those who had refused ($p = 0.0223$, $\chi^2$), giving a relative risk of being HBV positive of 1.88 ($CI = 1.12–3.16$) if a HIV test is refused (Table 3).

An analysis on Birmingham residents separately showed a prevalence of HBV in the ‘acceptors’ of 0.33 per cent (26/7923) and in the ‘refusers’ of 0.64 per cent (20/3118) ($p = 0.0221$) giving a relative risk of 1.95 (Table 3). The HIV testing acceptance rate in these HBV-positive women was >60 per cent for Caucasians, Asians, Oriental and ‘unknown’, but for Afro-Caribbean (eight women) and Arab (four women) the rate was only 50 per cent.

Discussion

The observed increase in the prevalence of HIV with testing uptake is consistent with those at low risk, and not ‘threatened’ by testing, accepting testing first. We have shown that the prevalence of another blood-borne virus, HBV is nearly twice as high in women who refuse HIV testing compared with those who accept testing. Our data show that those women currently refusing HIV testing are at a significantly higher risk of being persistently infected with HBV. The comparison with HBV is useful, but may still underestimate the extent of the problem. Only three out of the 48 HIV-positive women were also HBV positive (all African). Many of our HBV-positive women are from the Indian subcontinent, but most of our HIV-positive women are from Africa. The epidemiology of HBV in Africa is characterized by horizontal transmission with the acquisition of infection early in childhood, rather than by perinatal transmission, which is a feature of transmission in Asia. Perinatal transmission results in a high prevalence of HBV carriage, whereas infection in childhood leads to a high prevalence of natural immunity to hepatitis B and therefore a lower prevalence of persistent HBV infections. The screening assay we use does not detect past infections. The HIV testing uptake rate in the African women studied in the HBV analysis was satisfactory, but a lower proportion of UK-born Afro-Caribbean women with HBV accepted HIV testing. Our computerized data collection on ethnic origin, on which the uptake rates were examined, does not separate Black-African from Black-African-Caribbean, which reflects when the database was set up, not anticipating the increased immigration from Africa which is now such an important feature in the epidemiology of HIV infection in our population. As a consequence, we may be underestimating the testing acceptance rate in UK-born Afro-Caribbean women who are now our second largest group of HIV-infected mothers.

<table>
<thead>
<tr>
<th>Year</th>
<th>Booking samples</th>
<th>Tested for HIV</th>
<th>Overall uptake (%)</th>
<th>Number HIV positive</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 (from April)</td>
<td>44 657</td>
<td>47 377</td>
<td>10.6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2001</td>
<td>48 768</td>
<td>32 970</td>
<td>60</td>
<td>19</td>
<td>0.064</td>
</tr>
<tr>
<td>2002</td>
<td>47 201</td>
<td>34 916</td>
<td>74</td>
<td>29</td>
<td>0.083</td>
</tr>
<tr>
<td>Total</td>
<td>140 626</td>
<td>69 123</td>
<td>49</td>
<td>48</td>
<td>0.034</td>
</tr>
</tbody>
</table>

Table 1: Antenatal HIV testing uptake

<table>
<thead>
<tr>
<th>Ethnic group</th>
<th>September 2001 (%)</th>
<th>September 2002 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afro-Caribbean</td>
<td>56</td>
<td>76</td>
</tr>
<tr>
<td>Asian</td>
<td>66</td>
<td>81</td>
</tr>
<tr>
<td>Caucasian</td>
<td>71</td>
<td>79</td>
</tr>
<tr>
<td>Chinese/other</td>
<td>52</td>
<td>83</td>
</tr>
<tr>
<td>Not stated</td>
<td>56</td>
<td>64</td>
</tr>
</tbody>
</table>

Table 2: Testing uptake according to ethnic group
Our data clearly shows that there are significant differences between ‘refusers’ and ‘acceptors’, and confirms a higher risk of infection in the refusers.

There is a continuing need to improve screening uptake further, particularly among UK-born Afro-Caribbean women and to fully integrate HIV screening along with other accepted screening programmes.

References


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