NEW DIAGNOSES OF HTLV INFECTION IN ENGLAND AND WALES: 2002-2004

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Human T cell lymphotropic viruses (HTLV) are retroviruses transmitted through breast-feeding, sexual contact, blood transfusion and injecting drug use. HTLV is endemic in the Caribbean, and parts of Africa, Japan and South America, with isolated foci in other areas. Infection is life-long. Less than 5% of those infected progress to one of the HTLV-related diseases, but these are debilitating and often fatal.

In England and Wales, laboratory and clinical reports of new HTLV diagnoses are routinely collected, including infections identified by the blood service since the introduction of anti-HTLV testing in August 2002.

Between 2002-2004, 273 individuals were diagnosed with HTLV: 102 (37%) were male and 169 female (gender was not reported for two). Median ages at diagnosis were 54 and 50 years respectively. Clinical reports were received for 78% (212/273) individuals. Where reported, 58% (116/199) of individuals were of black Caribbean ethnicity and 29% (57/199) white; 87% (128/147) were probably infected heterosexually or through mother-to-child transmission; 45% (66/146) were probably infected in the Caribbean and 40% (59/146) in the UK.

An appreciable number of HTLV infections continue to be diagnosed within England and Wales, with increases in 2002-2003 because of anti-HTLV testing of blood donations. While most infections diagnosed are directly associated with the Caribbean, transmission of HTLV infection is occurring within England and Wales. Specialist care services for HTLV-infected individuals and their families have improved in recent years, but prevention remains limited.

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Background

The Health Protection Agency undertakes surveillance of new diagnoses of human T cell lymphotropic viruses (HTLV) in England and Wales (E&W). HTLV types I and II can be transmitted through breast feeding, sexual contact, and blood transfusion, with HTLV-II particularly associated with injecting drug use. HTLV-I is endemic in the Caribbean, Japan, South America, and parts of Africa, with HTLV-II found among some native American groups. If infected, the lifetime risk of developing disease is low (less than 5%). Clinically, HTLV-I infection may cause adult T cell leukaemia/lymphoma (ATLL) and/or HTLV-I-associated myelopathy/tropical spastic paraparesis (HAM/TSP) [1]. It is also associated with other inflammatory conditions [1]. There is some evidence that HTLV-II infection is associated with neurological and lympho-proliferative disorders [2].

Methods

Surveillance of new laboratory diagnoses of HTLV infection in E&W began in the late 1980s [3]. In 2002, surveillance was enhanced by the collection of further epidemiological information through a clinical reporting scheme, described in full elsewhere [4]. This coincided with the introduction of the national, routine testing of all blood donations for anti-HTLV by the UK Blood Services in August 2002 [4]. Reports of any HTLV infections diagnosed by the blood service in E&W are included in the routine surveillance scheme.

Probable route and country of infection are collected on clinical HTLV reports. The clinician indicates through which route the patient is most likely to have been infected through, and in which country. Where it is not clear, more than one route or country can be indicated. For those infected through heterosexual intercourse, information on their sexual partner is sought (e.g. had the partner injected drugs or has the partner had heterosexual intercourse in the Caribbean).

Surveillance findings from 2002 have previously been published [4]. Here, we present data from the surveillance system for 2002, 2003 and 2004; based on reports made to the scheme by the end of May 2005. The surveillance system coverage is likely to be near complete for laboratory-confirmed HTLV diagnoses made in E&W as most confirmatory testing for HTLV is undertaken at either at the Health Protection Agency Centre for Infections or the Health Protection Agency laboratory at King's College hospital, from which routine laboratory reports are sent. In 2004, the laboratory at the Centre for Infections performed approximately 1,500 HTLV tests. Clinical reports are sent out for completion for every HTLV positive laboratory report received.

Results

Between 2002 and 2004, 273 reports of new HTLV diagnoses were made in E&W; 88 in 2002, 101 in 2003 and 84 in 2004. Two hundred and fifty one (93%) were HTLV-I infections, 13 HTLV-II, one a HTLV-I&II co-infection and for eight HTLV type was as yet undetermined. Of the 273 people diagnosed with HTLV between 2002 and 2004, 102 (37%) were men (four HTLV-II), 169 (62%) women (nine HTLV-II) and gender was not reported for the remaining two (one HTLV-II). The proportion of diagnoses among women increased over time: in 2002 57% of HTLV diagnoses were among women, by 2004, 69% [TABLE]. Median age at diagnosis was 54 years for men and 50 years for women.

The majority (67%) of reports were about individuals diagnosed or receiving care in London [FIGURE 1]. Elsewhere in E&W, the largest numbers of reports were about HTLV-infected individuals diagnosed/cared for in the West Midlands region of England.

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TABLE

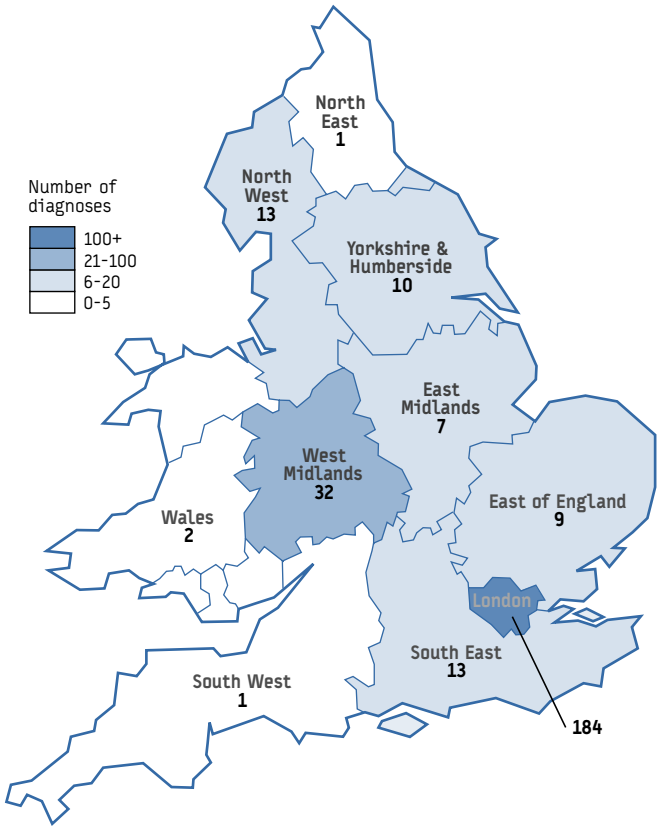
Sex and age distribution of individuals diagnosed with HTLV by year of diagnosis, England and Wales, 2002-2004

Age group (years)	2002			2003			2004			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
<35	2	4	6	9	5	14	5	4	9	16	13	29
35-44	9	12	21	6	11	17	3	13	16	18	36	54
45-54	7	14	21	9	21	30	5	14	19	21	49	70
55-64	7	8	15	7	13	20	3	9	12	17	30	47
65-74	10	10	20	7	8	15	4	13	17	21	31	52
75+	3	2	5	2	2	4	4	4	8	9	8	17
Total*	38	50	**88**	40	60	**100**	24	57	**81**	102	167	**269**

* Total excludes one female diagnosed in 2003 and one female diagnosed in 2004 with no reported DOB and two individuals diagnosed in 2004 with no reported sex as yet

FIGURE 1

Latest reported region/country of HTLV diagnosis/care, England and Wales



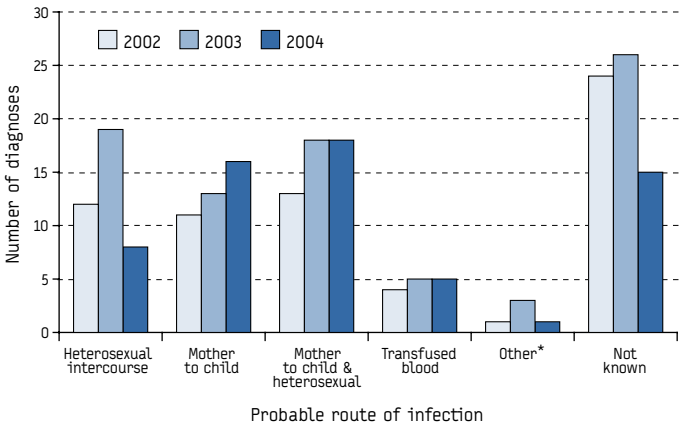
Note: One individual known to have left England and Wales and so not included in figures

At the time of writing, a clinical report (collecting more detailed epidemiological information), had been made for 212 (78%) individuals. The proportion of clinical reports made for individuals by year of diagnosis is as follows: in 2004 (75% [63/84]), in 2003 (83% [84/101]) and in 2002 (74% [65/88]). Further clinical reports for diagnoses made in 2004 are expected during 2005.

Where ethnicity was reported (199), 116 (58%) individuals were black Caribbean, 57 (29%) white (10 HTLV-II), 15 black African (one HTLV-II) and 11 of other ethnicity. The rate of HTLV diagnosis was therefore 20.5 per 100,000 among black Caribbeans living in E&W between 2002 and 2004, compared to 3.1 per 100,000 among black Africans and 0.1 per 100,000 among the white population [5]. The probable route of infection was reported for 147 individuals: 39 (27%) were probably infected through heterosexual intercourse (four HTLV-II), 40 (27%) through mother to infant transmission, 49 (33%) through either route, 14 through blood transfusion (two HTLV-II) and five through other routes (two HTLV-II) [FIGURE 2]. Where the probable country of infection was reported (146), 66 (45%) individuals were probably infected in the Caribbean (35 in Jamaica), 59 (40%) in the UK (four HTLV-II), 12 in Africa (seven in West Africa) (one HTLV-II), four in the Middle East, two in Asia and three elsewhere (one HTLV-II).

FIGURE 2

Probable route of HTLV infection by year of HTLV diagnosis, England and Wales, 2002-2004



* Includes two men infected through sex between men; two people infected through injecting drug use; and one through a needlestick injury (undocumented)

There were 42 individuals infected through either heterosexual intercourse or mother to child transmission within the UK, of whom four were known to have had a 'high risk' sexual partner (e.g. injecting drug user); 19 a partner or parent infected in the Caribbean, two a partner or parent infected in the UK and one, a partner or parent infected in Africa.

Where reason for testing was reported (208), 81 (39%) individuals had been tested because of symptoms (one HTLV-II), 82 (39%) as blood donors (eight HTLV-II), 13 (6%) had a HTLV-infected positive sexual partner, 13 (6%) had a HTLV-infected blood relative and 19 (9%) for other reasons (two HTLV-II). The reason stated changed over time [FIGURE 3]. There were larger numbers of individuals diagnosed through the screening of blood donors during 2002 (n=32) and 2003 (n=35) than in 2004 (n=15).

FIGURE 3

Reason for HTLV diagnosis by year of HTLV diagnosis, England and Wales, 2002-2004

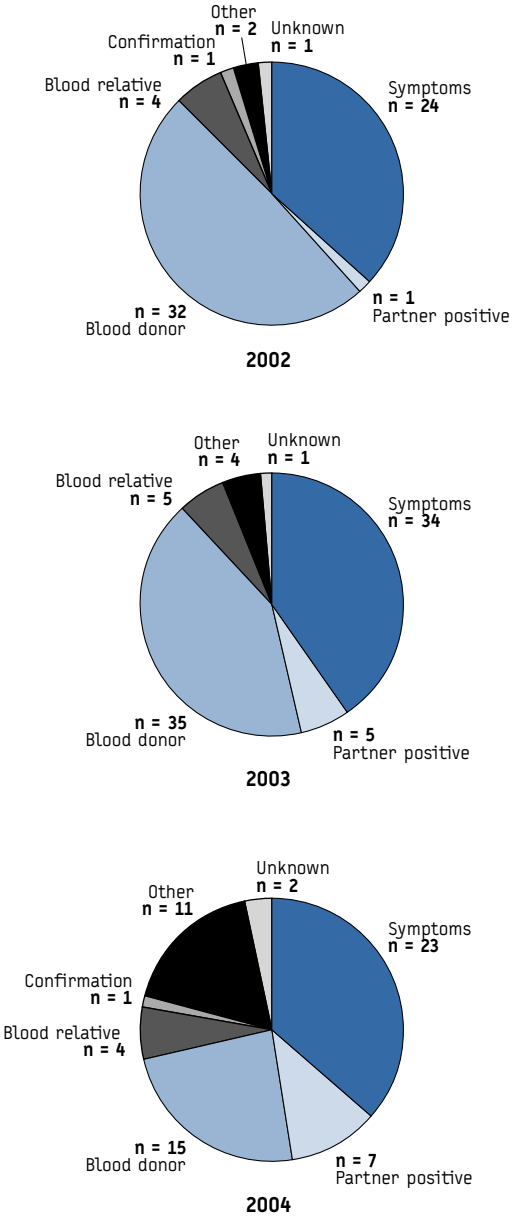
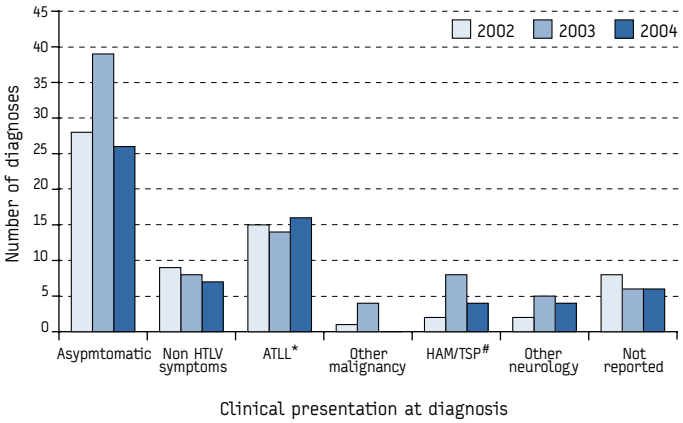


FIGURE 4

Clinical presentation at HTLV diagnosis by year of diagnosis, England and Wales, 2002-2004



* ATLL: adult T cell leukaemia/lymphoma

HAM/TSP: HTLV-I-associated myelopathy/tropical spastic paraparesis

Clinical presentation at diagnosis was reported for 192 individuals, of whom 93 (48%) were asymptomatic (seven HTLV-II), 45 (23%) had ATLL, 14 (7%) had HAM/TSP and 40 (21%) had other symptoms (three HTLV-II) [FIGURE 4]. Where ATLL type was reported (n=36), 19 (53%) had a lymphoma, 11 (31%) acute ATLL, four chronic ATLL and two smouldering ATLL. Of all the individuals diagnosed between 2002 and 2004 in E&W, 14 are known to have died (one HTLV-II).

Discussion

An appreciable number of HTLV infections continue to be diagnosed within E&W each year. The introduction of anti-HTLV testing of blood donations increased the number of new HTLV diagnoses in 2002 and 2003. However, by 2004 low numbers of infected blood donors were identified - most donors had already been tested, with those found positive excluded from further donation and referred to specialist centres for appropriate care. Overall, the rate of HTLV infection in blood donations E&W between August 2002 and December 2004 for new donors was 5.1 per 100,000 donations and for repeat donors, 0.9 per 100,000 donations [6].

The majority of HTLV diagnoses were among those of black Caribbean ethnicity, with HTLV diagnoses rates highlighting that in E&W, the black Caribbean population is disproportionately affected by HTLV infection. Infections were thought to have been mainly acquired through heterosexual intercourse and/or mother to child transmission, both within the Caribbean and the UK. In the main, those infected in the UK had a partner or parent from an endemic area. Data illustrate therefore, that while HTLV infection in E&W is mainly found among those originating from endemic areas there is also transmission of the infection in E&W itself. The geographical distribution of diagnosed HTLV infection in E&W reflects both the distribution of the black Caribbean population, which is focussed in London (60%) and the West Midlands (14%) [7], and also the location of specialist HTLV centres in London and Birmingham.

A clinical report containing more detailed epidemiological and clinical information had not yet been received for 21 (25%) individuals diagnosed in 2004. More outstanding clinical reports are expected over the coming months. It is important to bear this in mind when interpreting trends. For a relatively large proportion of individuals for whom a clinical report was made, the probable route and country of was not known (~30%), highlighting difficulties in assigning these variables for infections acquired many years previously, particularly in clinical settings where sexual histories are not collected routinely (as they would be for example, in GU medicine). In addition, probable route of infection was not known for those with only a laboratory report. Such data incompleteness may bias conclusions from routine surveillance data. In this case, proportionally more of those diagnosed with symptoms or with no reason for test did not have a probable route of infection reported compared to those diagnosed as blood donors, a blood relative or because of a positive partner, as well as older individuals and those with no reported ethnicity. Finally, it is important to remember that not all of those living with HTLV infection in E&W will be diagnosed and there will be biases in ascertaining HTLV infections within the population. For example, all blood donations are tested for HTLV, and people with HTLV-associated symptoms or HTLV-infected relatives or partners are more likely to be tested than those with no symptoms or contacts.

In conclusion, while HTLV infections continue to be diagnosed in E&W, the number of diagnoses in any given year seems to have peaked in 2003 with the identification of HTLV-infected blood donors, when considering trends since 1987 [3]. While there are now three designated sites across E&W (London, Birmingham and Manchester) providing specialist investigation, therapy and contact screening services for those infected and their families, the prevention of HTLV transmission, for example through screening of pregnant women for HTLV infection and contact tracing, is limited.

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ORIGINAL ARTICLES

Surveillance report

DISSEMINATED AND CHRONIC LYME BORRELIOSIS IN NORWAY, 1995 – 2004

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Lyme borreliosis is the most common tickborne infection in Norway. All clinical manifestations of Lyme borreliosis other than erythema migrans are notifiable to Folkehelseinstituttet, the Norwegian Institute of Public Health. During the period 1995-2004 a total of 1506 cases of disseminated and chronic Lyme borreliosis were reported. Serological tests were the basis for laboratory diagnosis in almost all cases. The annual numbers of cases showed no clear trend over the period, but varied each year between 120 and 253 cases, with the highest number of cases reported in 2004. Seventy five per cent of cases with information on time of onset were in patients who fell ill during the months of June to October. There was marked geographical variation in reported incidence rates, with the highest rates reported from coastal counties in southern and central Norway. Fifty six per cent of the cases were in males and 44% in females. The highest incidence rate was found in children aged between 5 and 9 years. Neuroborreliosis was the most common clinical manifestation (71%), followed by arthritis/arthralgia (22%) and acrodermatitis chronica atrophicans (5%). Forty six per cent of patients were admitted to hospital. Prevention of borreliosis in Norway relies on measures to prevent tick bites, such as use of protective clothing and insect repellents, and early detection and removal of ticks. Antibiotics are generally not recommended for prophylaxis after tick bites in Norway.

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Key words: Lyme disease, borreliosis, tickborne, Norway

Introduction

The incidence of Lyme borreliosis in different areas of Norway reflects the distribution of the tick vector, *Ixodes ricinus*. The prevalence of *Borrelia* sp. in *I. ricinus* has been investigated by phase contrast microscopy in many tick-infested locations along the Norwegian coast. Generally, the prevalence has been found to be 20%-30% in nymphs and 40%-60% in adult ticks [1]. No larvae examined were infected. Small rodents and birds are considered to be the main reservoir hosts in Europe [2].

The first description of erythema migrans with meningopolyradiculitis after tick-bite in Norway was published in 1955[3]. Cases of Lyme borreliosis were notified sporadically to the MSIS (Norwegian surveillance system for communicable diseases) from 1983, under the category 'other infectious diseases'. Since 1991 it has been a specified notifiable disease. In the early years of notification, all manifestations of Lyme borreliosis were notifiable, including erythema migrans. The case definition was revised with the implementation of the Infectious Disease Contol Act in 1995, after which only disseminated and chronic manifestations remained notifiable, (that is,. cases of erythema migrans were excluded).

In this article, we review surveillance data for disseminated and chronic Lyme borreliosis in Norway during the ten year period 1995-2004 in order to examine trends over time, geographical distribution, characteristics of patients and their clinical presentation.

Materials and methods

The MSIS (Norwegian surveillance system for communicable diseases) is administered by the Department of Infectious Disease Epidemiology at Folkehelseinstituttet (the Norwegian Institute of Public Health, NIPH) in Oslo. Laboratories of clinical microbiology and clinicians are required by law to notify cases of certain infectious diseases to the MSIS central unit at NIPH. The reports from the laboratory and clinician are combined and registered as one case at NIPH.

We reviewed cases of disseminated and chronic Lyme borreliosis notified in Norway during the ten year period 1995 to 2004. The case definition for laboratory confirmed Lyme borreliosis was clinically suspected disseminated or chronic disease, like acrodermatitis chronica atrophicans (ACA), arthritis or neurological disease **and** demonstration of the bacteria Borrelia burgdorferi **or** definite antibody titres. Population data from Statistics Norway (www.ssb.no) were used to calculate annual incidence rates.

In order to study the geographical distribution of cases over time, we mapped the cases in the two years with the highest incidence rates. The maps were created as dot-density maps in ArcGIS 9, where one case was presented as one dot randomly placed within the border of the municipality of residence.

Based on information on clinical signs and symptoms as described by clinicians on the notification forms, patients were put into the following main categories: neuroborreliosis (including meningitis, facial paralysis and meningopolyradiculitis), arthritis, acrodermatitis chronica atrophans (ACA), unknown and other. Cases with diagnosis based on analysis of cerebrospinal fluid (with or without confirmatory

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