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Targeted HIV screening in primary care; who should be tested?

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Background

- UK national guidelines have identified more than 20 clinical diagnoses where HIV testing should be carried out[1].
- The sustained proportion of late diagnosis of HIV infection in the UK suggest high rate of missed medical opportunities for the diagnosis of the infection.
- Late diagnosis of HIV infection can be associated with reduced life expectancy and HIV transmission[2]. Identification of initiatives for improvement in uptake of testing may reduce the rate of late diagnosis of HIV infection.
- High uptake of HIV testing in non-traditional settings has been reported [3,4].
- Lack of widespread staff knowledge and priority for provision of other core services may act as barriers for HIV testing in non-traditional settings.
- Development of a model based on patients' presentations in primary care settings may assist in targeted HIV screening that may be more cost effective.

Aims

- To investigate the prognostic values of clinical diagnoses probably associated with HIV with its diagnosis in primary care settings.

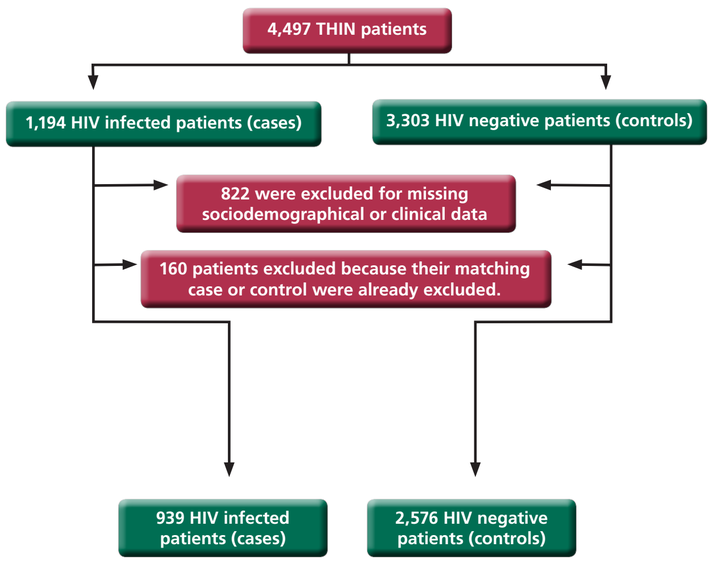
Methods

- Anonymised data from the Health Improvement Network (THIN) database were used to perform a retrospective nested cohort study to identify demographic, symptoms, clinical diagnoses, and patterns of attendance associated with HIV infection.
- All HIV infected patients aged 18 and over who were diagnosed at least one year after registration with their GP practices were included.
- HIV patients (cases) were matched to patients not known to have HIV (controls).
- Patients were matched by five-year age group and gender to controls in a 1:3 ratio. Controls were not known to be HIV infected, and were registered at the same practice during the year the case was diagnosed with HIV.
- A predictive model was developed to calculate the relative importance of those factors in identifying HIV infection.

Results

- 1,194 HIV infected patients and 3,303 controls from 362 general practices in the UK were included in the study. HIV infected patients were diagnosed between January 1989 and September 2010.
- There was no statistically significant difference between the mean age, or the gender distribution of cases and controls.
- Sociodemographic or clinical data were missing in 982 patients.
- A total of 3,515 cases and controls were included in the HIV model (figure 1).
- A total of 12 of clinical indicator diagnoses in the national guidelines were retained in the final model.

Figure 1. Study design



- Men constituted 71% of cases and 70% of controls.
- The mean age of cases was 41 years; this was 42 years for the controls.
- Table 1 summarises the clinical diagnoses recorded amongst study patients.

Table 1. The clinical diagnoses recorded in study patients

Clinical diagnoses associated with HIV	HIV infected patients (Cases)	(Controls)
Bacterial pneumonia	26	1
Aseptic meningitis/ encephalitis	2	0
Peripheral neuropathy not related to diabetes	2	1
Seborrhoeic dermatitis		
1 consultation	12	8
2 consultations	0	0
3+ consultations	0	0
Psoriasis		
1 consultation	14	12
2 consultations	9	4
3+ consultations	3	1
Herpes zoster	37	5
Oral candidiasis	45	2
Oral hairy leukoplakia	3	0
Diarrhoea		
1 consultation	62	44
2 consultations	13	6
3+ consultations	9	0
Weight loss	36	7
Salmonella, shigella, or campylobacter	3	6
Hepatitis B infection	4	0
Hepatitis C infection	3	0
Anal cancer or anal intraepithelial dysplasia	1	0
Seminoma	0	1
Non-Hodgkin's lymphoma	5	1
Cervical intraepithelial neoplasia	0	1
Blood dyscrasia	12	4
Retinopathy in non-diabetic patients	1	0
Lymphadenopathy	32	12
Parotitis	2	1
Pyrexia of unknown origin	22	9
Any STI	23	3
One of the above conditions	243	115
Two or more of conditions	64	7

- Not all clinical diagnoses were recorded amongst study patients (Table 2).

Table 2. Clinical diagnoses not recorded amongst study patients

Clinical diagnoses associated with HIV	HIV infected patients (Cases)	(Controls)
Aspergillosis	0	0
Cerebral abscess	0	0
Space occupying lesion	0	0
Guillain- Barre syndrome	0	0
Transverse myelitis	0	0
Dementia< 65 years	0	0
Leucoencephalopathy	0	0
Lung cancer	0	0
Head and neck cancer	0	0
Castleman's disease	0	0
Vaginal intraepithelial neoplasia	0	0
Infective retinal diseases including herpes viruses and toxoplasma	0	0
Lymphoepithelial parotid cysts	0	0
Mononucleosis like syndrome	0	0
None of the above conditions	887	3181

Table 3. Results of stepwise conditional logistic HIV model

	Odds Ratio	Std. Err.	z	P	95% CI	
Statistically significant conditions						
Bacterial pneumonia	47.7	52.0	3.54	<0.001	5.6	404.2
Oral candidiasis	29.4	21.8	4.57	<0.001	6.9	125.5
Herpes zoster	25.4	14.2	5.76	<0.001	8.4	76.1
Weight loss	13.4	6.7	5.15	<0.001	5.0	36.0
Non-Hodgkin's lymphoma	12.6	15.0	2.13	0.033	1.2	129.8
Lymphadenopathy	11.3	5.3	5.15	<0.001	4.5	28.3
Sexually transmitted infection	10.8	7.6	3.38	0.001	2.7	43.2
Pyrexia of unknown origin	7.2	3.5	4.05	<0.001	2.8	18.7
Blood dyscrasia	5.7	4.0	2.44	0.015	1.4	22.9
Diarrhoea - one consultation	3.7	0.9	5.48	<0.001	2.3	6.0
Diarrhoea - two consultations	4.4	2.3	2.81	0.005	1.6	12.1
Conditions not statistically significant						
Parotitis	8.6	11.0	1.68	0.093	0.7	106.1
Psoriasis - 1 consultation	2.6	1.5	1.69	0.091	0.9	7.9
Psoriasis - 2 consultations	3.0	2.5	1.38	0.168	0.6	14.8
Demographic variables						
Townsend quintile – per one quintile increase	1.3	0.1	5.92	<0.001	1.2	1.4
Asian ethnicity – per one quintile increase	0.8	0.1	-2.39	0.017	0.7	0.9

Discussion

- Our model identified 11 clinical diagnoses significantly associated with HIV infections.
- It is highly recommended that patients with those diagnoses should be tested for HIV infection.
- To the best of our knoweldge, this is the first study that measures the prognostic values of clinical diagnoses "probably related to HIV infection" in primary care settings.
- Further studies on prognostic values of diagnoses not recorded in our study are required.

Acknowledgement

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