

Introduction

- Data are emerging that ART exposed HIV-seropositive individuals are at an increased risk of chronic co-morbidities associated with ageing¹.
- Reports from sub-Saharan Africa describe an increase in chronic lung disease (CLD) in children and adolescents with perinatally acquired HIV^{5,6}.
- Limited prevalence data in high-income countries (HIC) suggest an increase in CLD⁴.
- As more children with HIV survive to adulthood the absolute number with CLD in this population will increase.
- It is important to determine the prevalence and phenotype of CLD in HICs to guide better detection and management and, with fewer confounding environmental exposures, determine if HIV is an independent cause of CLD.

Objective

To describe the prevalence and phenotype of chronic lung disease in a sample of individuals with perinatal-HIV infection in the UK, who receive anti-retroviral therapy.

Method

- A retrospective case note review of 82 children and young adults with perinatally acquired HIV.
- Data were extracted from clinical records to describe respiratory diagnoses, symptoms and chest radiology findings at 5 paediatric or transition clinics in the North of England.

Results

- 82 perinatally acquired HIV-seropositive individuals were included.
- Ring/tramline opacities were the most prevalent abnormalities on chest x-ray, 21.1%
- Bronchiectasis was the most prevalent abnormality on high resolution computed tomography 30.0%.
- Bronchiectasis and pneumonia were the most prevalent diagnoses of lung disease, 7.3%.
- A diagnosis of bronchiectasis was significantly associated with outpatient respiratory tract infections, $p = 0.026$.

Table 1. Demographic Characteristics

n=82	Median (IQR) or n (%)
Age, years	18.5 (15.0-22.0)
Sex, female	42 (50.6)
Country of birth outside the UK	54 (72.0)
Ethnicity, Black African	56 (68.3)
Median age HIV diagnosis *	5.1 (2.0-10.17)
Median years from HIV diagnosis to ART initiation**	0.2 (0.0-3.0)

IQR, inter quartile range; UK, United Kingdom *Data available for the 75 individuals, ** data available for 70 individuals.

Table 2. Prevalence of abnormalities on chest radiograph and high resolution computed tomography

Radiologic abnormality	Prevalence of abnormality, n (%)
CXR	
Atelectasis	2 (2.1)
Consolidation	12 (13.7)
Lymphadenopathy	2 (2.1)
Non-cavitating nodules	7 (7.4)
Reticular pattern	4 (4.2)
Ring/tramline opacities	20 (21.1)
Normal	47 (49.5)
No report available	9 (9.5)
HRCT	
Atelectasis	2 (20.0)
Bronchiectasis	3 (30.0)
Consolidation	2 (20.0)
Non-cavitating nodules	2 (20.0)
Normal	1 (10.0)

CXR, chest x-ray; HRCT, high resolution computed tomography. Data available for 80 individuals.

Table 3. Record of lung disease

Characteristic	Median (IQR) or n (%)	
Number of outpatient RTI per patient*	2	(1-3)
Number of times admitted to hospital for RTI #	0	(0-1)
Diagnosis of lung disease:		
Asthma	2	(2.4)
Bronchiectasis	6	(7.3)
Bronchiolitis obliterans	1	(1.2)
Disseminated TB	1	(1.2)
LIP	2	(2.4)
PCP	2	(2.4)
Pneumonia	6	(7.3)
Pulmonary TB	5	(6.1)

IQR; interquartile range; LIP, Lymphocytic interstitial pneumonia; PCP, pneumocystis jirovecii pneumonia; RTI, respiratory tract infection; TB, Tuberculosis.

*Data available for 61 individuals. # Data available for 80 individuals.

Figure 1: A CXR of an individual with ring and tramline opacities.

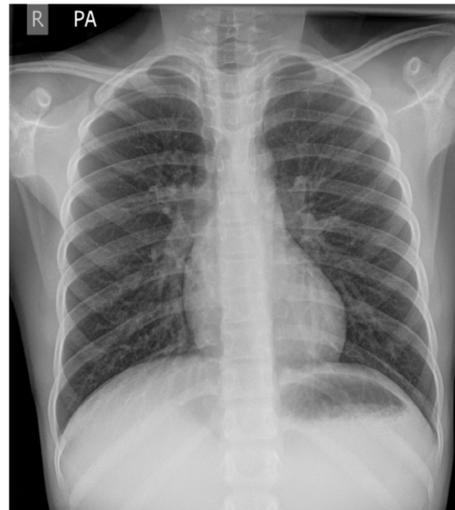


Figure 2: HRCT of an individual with a diagnosis of bronchiectasis.



Table 4. Distribution of characteristics by diagnosis of bronchiectasis

Characteristic	Sample, median (IQR) or n (%)			
	Bronchiectasis (n=6)	No bronchiectasis (n=76)	Confidence Interval	P value
Gender, female	3 (50.0)	41 (52.6)		1.000
Born outside the UK	5 (83.3)	49 (70.0)		0.313
Age at HIV Diagnosis	6.1 (5.8-8.6)	5.0 (2.0-10.9)	-5.8 to 3.6	0.488
Years HIV Diagnosis to ART initiation	0.1 (0.05-0.55)	0.2 (0.0-3.6)	-1.0 to 6.8	0.649
Nadir CD4 Cell count, cells/	265.0 (258.5-406.5)	271.5 (127.5-437.0)	-337.0 to 54.0	0.247
Number of outpatient RTI per patient*	10.5 (5.3-18.0)	2.0 (1.0-4.0)	-22.0 to -1.0	0.026
Number of times admitted to hospital for RTI #	1.0 (0.0-1.0)	0.0 (0.0-0.0)	-1.0 to 0.0	0.550

ART, antiretroviral therapy; IQR, interquartile range; RTI, respiratory tract infection; UK, United Kingdom

*Data available for 61 individuals. # Data available for 80 individuals.

Discussion

- There is a high prevalence of bronchiectasis in a sample of perinatally acquired HIV-seropositive children and adolescents in the UK.
- The prevalence is similar to that reported in the USA/
- The prevalence of bronchiectasis is lower than sub-Saharan Africa.
- Conclusions are limited by the retrospective study design and small sample size.
- Prospective chest imaging would provide a more accurate, standardised method of investigating the prevalence and phenotype of lung disease.

Conclusions

- There is a high prevalence of bronchiectasis in children and young adults with perinatally acquired HIV in the UK.
- As increasing numbers of children with HIV survive to adolescence and adulthood the prevalence of CLD in this population will increase.
- It is necessary to conduct a prospective study to establish the phenotype and prevalence of CLD in the UK population with perinatally acquired HIV.
- A multi-centre, prospective study that uses spirometry, chest radiology imaging and questionnaire to investigate CLD in this population is recommended.

References

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