Pulmonary Langerhans cell histiocytosis (PLCH): a new UK register

Abstract Pulmonary Langerhans cell histiocytosis (PLCH) is a rare interstitial lung disease of unknown aetiology. We aimed to characterise a UK-wide cohort of patients with PLCH and compare diagnostic and management methods in specialist and non-specialist centres. 106 cases (53 hospitals) identified. Complete data received in 67 cases (53.7% female, age 37.1±14.4 years). 96% current or ex-smokers. Treatment; smoking cessation (79%), corticosteroids (30.6%), cytotoxic therapy (26.9%) and lung transplant (6%). Patients at specialist centres received cytotoxic drugs more often (p=0.0001) and survival appeared higher. This dataset indicates a more even gender distribution than previously documented. It suggests variation in clinical management and outcomes achieved dependent on clinical experience.

Pulmonary Langerhans cell histiocytosis (PLCH) is a rare interstitial lung disease that can result in respiratory failure and death. Limited demographic and prognostic information is available, with much of what is known extrapolated from single centre studies.[1 2] To date no data has been available on the UK cohort and thus we developed a national PLCH register to characterise the UK population and to enable future research.

Cases were initially identified from the British Thoracic Society Orphan Lung Disease (BOLD) database and subsequently through advertisements in the eBritish Thoracic Society (BTS) bulletin, at BTS meetings, the BTS BOLD conference and by contacting all UK interstitial lung disease leads. Demographic and clinical data were collected with consent (Ethics no: 08/H0104/98) by post, from individual patients, their respiratory clinicians and their general practitioners.

One hundred and six patients (17 deceased, 8 lost to follow-up) were initially identified from 53 centres. Of these, sufficient data to allow analysis was available for 67 cases (mean age at presentation 37.1±14.4 years, 53.7% female).

The main presenting symptoms were dyspnoea (78%) and cough (63%); 80.7% had a normal respiratory examination. Mean pack year smoking history was 19.9 ±16.9; 25% were current smokers and 71.7% ex-smokers. Six per cent reported smoking cannabis. Lung function was reported for 49 out of 67 patients. Mean (SD) FEV_1 72.3±25.3%, FVC 86.2 ±23.3%. Of the patients 38% had an obstructive pattern and 16% restrictive. Of the cases, 70.5% had transfer factor <70% predicted.

Diagnosis was made on surgical biopsy in 61% of cases. Treatment received included; smoking cessation (79%), corticosteroids (30.6%), cytotoxic therapy (26.9%), pleural intervention (16.4%) and lung transplant (6%).

Twenty-seven of our 67 patients were managed in a specialist centre. Patients were significantly more likely to have had an echocardiogram (p=0.01) and receive cytotoxic drugs if managed in a specialist centre (p=0.0001). No difference was detected in the number of open lung biopsies performed (p=0.8) Survival appeared higher in those treated at a specialist centre (p=0.03) (see table 1).

This study has several limitations. Patients joined our register and the original BTS BOLD database voluntarily, potentially introducing selection and referral bias. Missing data from deceased patients or those lost to follow-up may also have introduced survivorship and selection bias. Recall bias related to questionnaires was minimised by assessing agreement between patient and clinician responses.

In conclusion, this population-wide analysis of patients with PLCH in the UK has shown similarities with previously described cohorts from other countries.[1–4] It has reconfirmed a potential change in disease distribution with female preponderance[3] and its apparent association with cigarette smoking. It has indicated that despite advances in CT, a high proportion of patients still require an open lung biopsy for diagnostic confirmation. Finally, it has also identified the variation in the treatment options available for patients depending on where their disease is managed and suggests the need to produce guidance for all clinicians to remove potential treatment inequalities.

Our register is still open to recruitment and we are keen to hear from any clinicians with patients with PLCH.

Table 1 Comparison of demographics, mode of diagnosis and clinical management between patients managed in a specialist centre versus a non-specialist centre

N (%)	Non-specialist 40	Specialist 27	χ^2 p Value
Age at presentation (years)	36	39	
Gender			
Male	21 (52.5)	10 (38.5)	0.2
Female	19 (47.5)	17 (62.9)	
Smoking history			
Current	10 (25)	5 (18.5)	
Ex	23 (57.5)	20 (74.1)	0.73
Never	1 (2.5)	1 (3.7)	
Pack years	20.9	18.5	
Diagnosis			
Bronchoscopy	9 (22.5)	8 (29.6)	0.5
HRCT scan	28 (70.0)	27 (100)	0.05*
Lung biopsy	19 (47.5)	12 (44.4)	0.8
Investigation			
Echocardiogram	10 (25)	15 (55.6)	0.01*
Treatment			
Smoking cessation	25 (62.5)	21 (77.8)	0.19
Steroids	10 (25)	9 (33.3)	0.46
Cytotoxic	4 (10)	14 (51.8)	0.0001*
Lung transplantation	1 (2.5)	0 (0)	0.84
Outcome			
Deceased	9 (22.5)	1 (3.7)	0.03*

*Significant result (p<0.05).
HRCT, high resolution computed tomography.

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