P262 SKELETAL TUBERCULOSIS – A RETROSPECTIVE REVIEW AT TWO INNER CITY UK HOSPITALS

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Introduction and objectives Skeletal tuberculosis (TB) accounts for about 10% of extrapulmonary tuberculosis in Europe and the USA.[1] Outcomes and duration of treatment are less well described than pulmonary TB. We sought to identify characteristics and outcomes for patients diagnosed with skeletal TB in the two hospitals in our trust.

Methods Cases of TB treated in our NHS trust from 1/1/2011 to 31/12/2013 with site of disease including bone and/or spine were included. Data was obtained from the Enhanced TB Surveillance Database and case note review. Patients with a positive alternative diagnosis were excluded. TB affecting other body systems was defined as imaging abnormalities with exclusion of alternative diagnoses.

Results 34 patients (20 males), mean age 42.7 years, were identified. 29(85%) were born outside the UK. No patients were HIV positive (test not offered/refused in 11%). Sites of disease are shown in Table 1. 13(38%) of patients had the diagnosis made via non-surgical biopsy (either radiological or bedside), 6(18%) through surgical biopsy, and 5(15%) of patients having the diagnosis made through sampling from another site (usually pulmonary). The remainder of patients (10) either had a clinico-radiological diagnosis or the diagnosis made overseas, with 4 of those patients undergoing a non-diagnostic biopsy. Mean length of treatment was 10 months. At end of treatment 9(40%) of spinal TB patients had ongoing back pain and 4(33%) of patients with appendicular joint involvement had residual stiffness.

Abstract P262 Table 1

Skeletal sites of disease (Total patient number = 34)	
Isolated Spine	Number (Total = 22)
Cervical	2 (10%)
Thoracic	8 (36%)
Lumbar	6 (27%)
Sacral	0
Multifocal	6 (27%)
Other skeletal	Number (Total = 12)
SI joint	3 (25%)
Rib	2 (17%)
Multifocal	2 (17%)
Patella	1 (8%)
Calcaneum	1
Humerus	1
Tibia	1
Metacarpals	1
Concurrent Extra-skeletal disease	Number
Intra-thoracic	11 (32%)
Extra-thoracic	3 (9%)

Conclusions Bedside or image guided procedures have a role in diagnosis of skeletal TB; about 30% will also have pulmonary TB which may be more accessible for diagnosis. Sending for TB culture during surgery is important. After appropriate treatment a proportion of patients have residual pain and stiffness.

REFERENCE

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P263 DOES AGE INFLUENCE THE DIAGNOSTIC PATHWAY IN PATIENTS WITH TB LYMPHADENITIS?

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Introduction London has a high incidence of TB with north-east London having amongst the highest rates of TB in the U. K. Microbiological analysis is the gold standard method of diagnosis for patients with TB. A recent review of patients with TB lymphadenitis demonstrated that a significant proportion of these patients were diagnosed on histology alone. This proportion increased in patients over 60 years old, suggesting that tissue or fluid specimens were not routinely analysed in this group.

Aims To ascertain whether age is a factor in influencing the diagnostic pathway, particularly the use of invasive tests, in investigating individuals with lymphadenopathy in this high-incidence area for TB.

Methods A retrospective analysis was undertaken of patients with TB lymphadenitis from 2009 – 2011 diagnosed by the Barking, Havering and Redbridge Hospitals NHS Trust TB service using the London TB register.

Results 308 patients over the age of 18 years were identified with TB lymphadenitis. Of 281 patients between 18 – 65 years, 15.3% (43) had no specimen sent for analysis. 2/27 (7.4%) of patients >65 years had no specimen sent for analysis.

Conclusion Previous work has shown that in individuals over 60 years old, TB lymphdenitis was diagnosed predominantly on histology only (80%). Younger patients were more likely to have diagnosis confirmed on microbiology.

This study demonstrates that increasing age is not a factor in influencing the diagnostic pathway, particularly the use of invasive tests, in investigating patients with lymphadenitis. However, in spite of the high incidence of TB, the biopsy specimens obtained from patients from all age groups are not routinely sent for microbiological analysis.

P264 A MULTI-CENTRE REVIEW OF THE MANAGEMENT OF PULMONARY NON-TUBERCULOUS MYCOBACTERIAL (NTM) INFECTION IN HIV-NEGATIVE SUBJECTS

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Introduction Non-Tuberculous Mycobacteria (NTM) are ubiquitous in the environment meaning clinical, radiological and microbiological criteria are important in diagnosing NTM lung disease. A multicentre, retrospective review was performed to characterise NTM disease within our region and describe the outcomes of current management.

Methods All NTM positive sputum samples received by the National Mycobacterium Reference Laboratory (NMRL) from Imperial College NHS Healthcare and North West London

Hospitals NHS Trusts between 2010–2014 were extracted. HIV-negative individuals with ≥2 positive sputum samples or ≥1 positive bronchoalveolar lavage were included. Demographic, clinical, radiological, microbiological, management and outcome data was obtained from electronic records.

Results 1190 NTM sputum samples were identified from 822 individuals. 152 individual patients met inclusion criteria for analysis. Table 1 describes cohort demographics.

Within the cohort 48/152 (32%) were treated for NTM disease. All treated subjects and 74/104 (71%) non-treated subjects met international guidelines for diagnosis of NTM infection, which included positive clinical, radiological (cavities or bronchiectasis +/- nodules or infiltrates) and microbiological criteria. *Mycobacterium avium complex* (MAC) was the most commonly isolated (68/152; 45%) and treated organism (21/48; 44%) followed by *Mycobacterium kansasii* (11/48; 23%). 19/48 (40%) completed treatment (median duration: 17 months [IQR: 12–24]). 10/48 (21%) remain on treatment (median duration: 18 months [IQR: 11–36]), 11/48 (23%) stopped treatment due to side effects and 13/48 (27%) were either lost to follow up or treated for *Mycobacterium tuberculosis*.

Of those treated, 29/48 (60%) culture converted; 23/29 (79%) remain negative at 12 months post culture conversion. Of 19/48 who completed treatment, 5/19 (26%) had symptomatic or radiological disease progression compared to 11/28 (39%) who did not complete treatment. 11/48 (23%) patients died within the treatment group. Within the untreated subjects who met international guidelines for NTM infection (74/104), mortality was 19/74 (26%) (p = 0.83).

Abstract P264 Table 1 Demographic characteristics of NTM positive individuals managed between 2010 and 2014 at ICHCT and NWLH Trusts

Characteristic	Notes	Treated (n = 48)	Non-treated (n = 104)
Age	Median (IQR)	63 (54–76)	70 (56–79)
Sex	Male (%)	28 (58)	60 (58)
Ethnicity			
	White (%)	25 (52)	51 (49)
	Black (%)	5 (10)	10 (10)
	Asian (%)	14 (29)	21 (20)
	SE Asian (%)	0 (0)	5 (5)
	Other (%)	2 (4)	8 (8)
	Unknown (%)	2 (4)	9 (9)
Immunosuppression	n = (%)	12 (25)	38 (37)
Chronic lung disease	n = (%)	29 (60)	42 (40)
Diabetes	n = (%)	2 (4)	8 (8)
Symptoms at diagnosis			
	Cough (%)	39 (81)	73 (70)
	Dyspnoea (%)	14 (29)	28 (27)
	Weight loss (%)	19 (40)	17 (16)
	Fever (%)	6 (13)	20 (19)
	Haemoptysis (%)	6 (13)	17 (16)
	Night sweats (%)	10 (21)	8 (8)
	Other (%)	6 (13)	14 (14)
	Asymptomatic (%)	0 (0)	7 (7)

Discussion NTM is a challenging disease with only 39% of eligible subjects receiving treatment and a high associated mortality. Furthermore, only 40% starting treatment completed it and the 21% who remain on treatment have been treated for a median duration of 18 months to date. Unlike similar HIV-negative UK cohorts, MAC pulmonary disease is the most prevalent.

Diagnosis and management of pulmonary arterial hypertension

P265 THE CLINICAL UTILITY OF BIOMARKERS ASSOCIATED WITH INFLAMMATION AND ENDOTHELIAL DYSFUNCTION IN CTEPH

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Introduction Chronic thromboembolic pulmonary hypertension (CTEPH) is a rare form of pulmonary hypertension. Inflammation, defective angiogenesis and endothelial dysfunction have been implicated in its pathogenesis. We assessed the prognostic utility of biomarkers, related to these processes, in pulmonary endarterectomy (PEA) assessment.

Methods 80 patients with CTEPH had serum samples taken immediately prior to PEA and a subset (n = 54) also at follow-up after PEA. 20 healthy volunteers and 20 patients with idiopathic pulmonary arterial hypertension (IPAH) served as controls. Samples were processed on a custom-designed Luminex multiplex array. Biomarker levels were correlated to haemodynamics and functional assessments. Material removed during PEA and explanted lungs of CTEPH and IPAH patients were additionally analysed using immunostaining.

Results Compared to healthy controls Pre PEA samples showed increases in interleukin (IL)-8, -10, tumour necrosis factor α (TNFα), high sensitivity C-reactive protein (hsCRP) and angiopoietin 2 (Ang2). Vascular endothelial growth factor (VEGFc) was higher in healthy controls.

Following PEA (6.00 ± 1.83 months), improvements in haemodynamics and six-minute walk distance were observed compared to baseline (Table 1). Additionally, there were decreases in Ang2 and Endoglin.

Preoperative Ang2 levels were independently associated with baseline pulmonary vascular resistance (PVR) with multiple linear regression ($p < 0.0001$). A similar association was found in IPAH subjects ($p < 0.05$).

Ang2 expression was demonstrated in the endothelium of distal pulmonary arteries in both IPAH and CTEPH notably in areas of small vessel vasculopathy and in neovessels found in the PEA specimens.

The clinical utility in predicting small vessel vasculopathy and residual CTEPH post-PEA surgery was assessed using a cross validation approach. Baseline Ang2 was a necessary component of the best multiple linear model for predicting PVR at follow up (along with baseline PVR, WHO class, age and the use of PAH targeted therapy) $r^2 = 0.39$, $q^2 = 0.35$.

Conclusion We found only modest increases in any marker of inflammation in CTEPH, they were not normalised by PEA or correlated to disease severity. By comparison Ang2 correlated with haemodynamics and has utility in predicting postoperative outcomes.