Results 11 patients were included in this study. NSCLC was confirmed in all patients. 7 patients were diagnosed with adenocarcinoma and 4 patients with squamous cell carcinoma. A differential stain for lung cancer versus normal tissue was achieved (Figure 1).

Abstract S35 Figure 1 Lung cancer (a) and healthy tissue (c) prior to MB delivery. Differential staining of lung cancer tissue (b) following MB delivery and wash. Minimal staining of healthy tissue (d) following MB delivery and wash

Conclusion These findings indicate that MB has the potential to differentiate malignant and healthy tissue in an *ex vivo* model. This study supports the utility of MB as a potential diagnostic aid in lung cancer surveillance.

Management of TB

S36 WEEKLY AUDIOGRAMS PRE-EMPTIVELY IDENTIFY AMIKACIN RELATED OTOTOXICITY IN MDR-TB

¹A Abbara, ¹S Lang, ²OM Kon, ³SM Collin, ⁴D Pan, ²T Hansel, ⁴R Ravindran, ⁴R Holder, ¹L John, ¹RN Davidson. ¹London North West Healthcare NHS Trust, London, UK; ²Imperial NHS Healthcare Trust, London, UK; ³University of Bristol, Bristol, UK; ⁴Imperial College, London, UK

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Introduction and objectives Updated WHO guidance recommends at least 8 months of aminoglycoside (AG) for MDR-TB but provides no definitions or monitoring strategies for ototoxicity. Most UK centres perform 2–4 weekly audiograms; we perform weekly audiograms. We retrospectively investigated whether this strategy pre-emptively identifies ototoxicity before significant hearing loss (HL) is evident.

Methods Patients we treated with amikacin for MDR-TB from 2002–2015, with at ≥ 4 weekly pure tone audiograms, were included. Audiograms, treatment duration, symptoms, creatinine clearance and outcome were obtained from clinical records. All patients received amikacin at 15 mg/kg per day and had weekly amikacin levels and renal function. Definition of HL was defined as per the ASHA as >20 dB loss of pure tone threshold from baseline at one frequency or >10 dB at two adjacent frequencies.

Results 31 MDR-TB patients fulfilled selection criteria; 15 female, median age 36 years (IQR: 24–43) and median weight 61.5 kg (IQR: 52–65.) 22/31 (70.9%) patients had their first

audiogram within 10 days; median 5.5 (IQR:4–7.) The median duration of amikacin treatment was 79.5 days (IQR: 61.75–94) and median total dose of 70.8 g (IQR:44.4–97.75.) 4/31 (12.9%) had moderate-severe baseline hearing loss (HL). A total of 17 (54.8%) patients met the ASHA definition of HL: 7 at 4 kHz, 10 at 6 kHz and 17 at 8 kHz. The median time to meeting ASHA definition of HL among these patients was 59 days (IQR: 41–84.75). 16/31 (51.6%) patients stopped amikacin earlier than planned and 1 continued; 2 (6.5%) due to symptoms of deafness, 2 (6.5%) due to tinnitus and 12 (38.7%) due to asymptomatic high frequency HL on audiograms. Creatinine clearance and trough amikacin levels remained within range for all patients. Regarding outcomes, 17 (54.8%) completed TB treatment, 5 (16.1%) remain on treatment, 4 (12.9%) transferred, 3 (9.7%) were lost to follow up and 1 (3.2%) died.

Conclusions AGs are important in the treatment strategy of MDR-TB but this must be balanced with the long-term side effects. The ototoxicity of AG is unrelated to elevated drug levels or contributing factors and is a common adverse effect. Weekly audiograms led to earlier detection of pre-symptomatic amikacin ototoxicity and cessation in 38.7% of patients.

S37 THE RESPONSE OF OBJECTIVELY-MEASURED COUGH TO TREATMENT IN TUBERCULOSIS: AN EXPLORATORY STUDY

¹RD Turner, ²SS Birring, ¹GH Bothamley. ¹Homerton University Hospital NHS Foundation Trust, London, UK; ²King's College London, London, UK

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Introduction and objective Cough is predominant in pulmonary tuberculosis and transmits infection, yet it is unclear how rapidly it responds to treatment. We explored changes in objectively-measured cough frequency during TB therapy with respect to other markers of disease.

Method Before or on commencing anti-tuberculous treatment, consecutive patients with pulmonary tuberculosis wore the Leicester Cough Monitor for 24 h, a device comprising a small digital audio recorder and microphone with software for cough detection. Those with a baseline cough frequency greater than the upper limit of normal (*c.* 100 coughs/24 h [c/24h]) were asked to undergo repeat monitoring during initial hospitalisation (if applicable), and later to coincide with routine clinic attendance or directly observed therapy (DOT).

Results Median baseline cough frequency was 203 (IQR 75–470) c/24 h in all participants (*n* = 44), and >100 c/24 h in 32 (73%). 22 patients were willing and available to undergo serial cough monitoring (12 current smokers, 18 sputum smear positive disease [12 also with visible lung cavities], and one with HIV). Three had isoniazid-resistant disease; the remainder were fully drug-sensitive. All were eventually treated successfully. None had other respiratory diagnoses.

Cough frequency in the majority declined consistently during therapy with substantial improvements by one week (Figure 1). At 2 and/or 8 weeks, five patients had a higher cough frequency than at baseline. Amongst these slow responders there was initial extensive radiographic change (*n* = 1), poor drug adherence with ongoing weight loss (*n* = 1), a paradoxical reaction to treatment with the development of a paraspinal abscess (*n* = 1), and, in the patient with HIV, persistent sputum smear positivity at 8 weeks with minimal radiographic improvement despite DOT and normal plasma rifampicin levels. One other patient