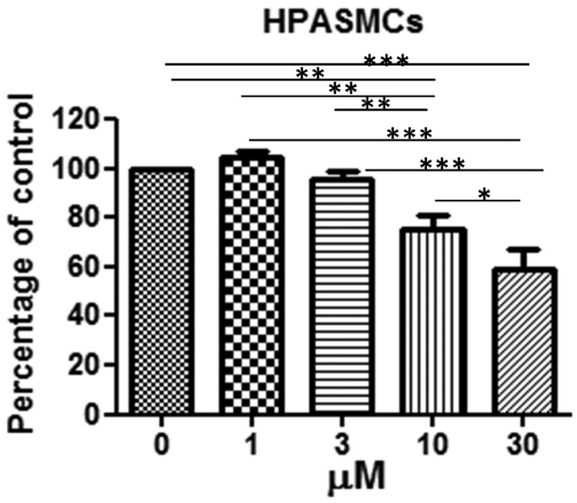

Abstract S39 Figure 2 Bay41–2272 inhibits HPASMC proliferation, data were presented as mean±SEM, n = 3. *p < 0.05; **p < 0.005; ***p < 0.001

determine the effects of Bay 41–2272, the tool compound for riociguat, on remodelling processes in pulmonary vascular cells.

Methods We used primary human endothelial (HPAECs) and smooth muscle cells (HPASMCs) as our target cells. Proliferation was measured using the CyQUANT proliferation kit after cells were treated with various concentration of Bay 41–2272 (kind gifted by Bayer Pharmaceuticals Ltd) for 72 h in the presence of 15% serum. Apoptosis was measured using Cell death ELISA kit and DAPI staining after cells were treated with various concentration of Bay 41–2272 for 24 and 48 h in the absence of serum.

Results Bay41–2272 treatment increased HPASMC apoptosis after 24 and 48 h (Figure 1) by Cell death ELISA; this was further confirmed by DNA condensation assay (DAPI staining). Bay 41–2272 treatment also increased HPAEC apoptosis at 24 h. It was not clear at 48 h treatment whether HPAEC cell death was significant in the absence of serum. Bay 41–2272 treatment reduced HPASMC proliferation (Figure 2), but had no effect on HPAECs.

Conclusions Our preliminary indicate that Bay 41–2272 increases apoptosis and inhibits proliferation, at least in HPASMCs, *in vitro*. Further studies are needed to fully characterise these effects on remodelling processes and to compare sGC stimulators, such as Bay 41–2272 to Type V phosphodiesterases.

Images in pleural disease

S40 IMPROVING THE PATIENT JOURNEY: THORACIC ULTRASONOGRAPHY AS AN ADJUNCT TO DECISION MAKING AND DIAGNOSTIC PATHWAYS IN PLEURAL DISEASE

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Background and method Pleural disease represents a growing source of referrals to respiratory services. Physicians increasingly provide many of the diagnostic and therapeutic interventions these patients require independent of colleagues in radiology or thoracic surgery. This changing practice can streamline diagnostic pathways within individual centres, and is reflected in BTS guidelines and the need for respiratory physicians to train in thoracic ultrasonography (TUS).

Patients referred to our tertiary-level service undergo in-depth TUS to help determine their diagnostic pathway; assessing factors including the nature of any pleural fluid, positioning of intercostal vessels, and movement of the underlying lung. We reviewed our procedural database (January 2010 to June 2014) and clinical records to identify cases where TUS influenced clinical decision making or subsequent investigations.

Results Procedural triage: 359 patients underwent assessment for diagnostic procedures to obtain pleural tissue during the study period. 64 patients were directed to have TUS-guided cutting needle pleural biopsies due to co-morbidity or after TUS identified heavily septated fluid and/or absent lung sliding (representative of adherent lung) that would prevent local anaesthetic thoracoscopy (LAT). One patient was referred for surgical biopsies after TUS identified septated fluid and an at-risk intercostal vessel that would prevent safe intervention by the physician team.

Advanced LAT: 294 LATs were scheduled during the study period. Four LATs were converted "on the table" to TUS-guided cutting needle biopsies after TUS identified increasing septation within the pleural space; a secure diagnosis was obtained in all cases.

95 LATs (32.3%) required Boutin needle pneumothorax induction under TUS guidance. This was successful in 77 cases (81.1%); in those LATs (n = 18) where pneumothorax formation failed an attempt to obtain pleural tissue was made in 10 cases using TUS-guided cutting needle biopsies, making a secure diagnosis in 6 patients.

Conclusion TUS can greatly improve the patient's journey from presentation with pleural disease to diagnosis and should be utilised in all cases. TUS allows selection of the most appropriate means of obtaining diagnostic pleural tissue and facilitates more complex procedures. As interventional respiratory physicians become familiar with the capabilities of TUS this type of advanced practice may become increasingly widespread.

S41 LOOKING BEYOND THE PLEURA – A SYSTEMATIC REVIEW OF THORACIC ULTRASONOGRAPHY TO DIAGNOSE LUNG CONSOLIDATION IN RESPIRATORY FAILURE

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Background and method The use of thoracic ultrasound (TUS) by physicians is increasingly commonplace in light of recent BTS guidelines and changes to training curricula. At its simplest, TUS enhances patient safety during interventions through the identification of pleural fluid and underlying structures. However, TUS training documents in the UK (Royal College of Radiologists) and US (American College of Chest Physicians) acknowledge a need for the ultrasonographer to recognise features of underlying lung, including consolidation.