



Biochemical Profiles of Radiographic Patterns in SSc-ILD

This was a study examining the relationship with proteins measured in the BAL fluid of patients with systemic sclerosis related ILD and specific patterns of radiographic fibrosis in these patients. So the hallmarks of ILD in patients with systemic sclerosis that we see on radiology are ground-glass opacity, which represents interstitial inflammation, as well as reticulation, which represents fibrosis or scarring. Studies have demonstrated that treatment with immunosuppression, such as mycophenolate or cyclophosphamide can lead to improvements, not only in the extent of ground glass opacity, but also in the extent of fibrosis or reticulation.

The purpose of this study was to try to understand what is the pathobiology underlying these distinct radiographic patterns of ILD. And so to do this, this study sampled from the bronchoalveolar lavage fluid of patients with systemic sclerosis related ILD who participated in the Scleroderma Lung Study I. And the Scleroderma Lung Study I was a study that compared cyclophosphamide versus placebo for the treatment of SSC ILD. And all of the patients in the study underwent a bronchoscopy at baseline, where we were able to sample the fluid from their lung and then measure over 68 cytokines, chemokines and growth factors.

And what we found was that distinct proteins were associated with the ground glass opacity pattern, whereas other distinct proteins were associated with the fibrosis pattern. And what this means is that certain cytokines or chemokines may be up regulated and produce these interstitial inflammatory changes, whereas others may be up regulated and produce more of these reticular or fibrotic changes.

This has implications in terms of our understanding of how this disease progresses, but it also provides important treatment targets. So some of these cytokines, chemokines and growth factors could potentially be targets that new therapies could address to help decrease inflammation and decrease fibrosis in patients with this disease. When we think about the strength of the associations between these specific proteins and the radiographic patterns of ILD, we see that some have really strong correlations and other have more weak correlations. So for example, TGF alpha had a pretty strong estimate in terms of its relationship with the extensive fibrosis in the whole lung. And other studies have shown that TGF is important in moderating fibrosis in patients with systemic sclerosis. So I think that looking at this list of cytokines, chemokines and growth factors, and also putting it in the context of prior studies done in this area will help us to identify the most meaningful treatment targets from this list of variables.