

## Acid And Non-Acid Reflux In Idiopathic Pulmonary Fibrosis

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**Rationale:** Gastroesophageal reflux disease (GERD) has been associated with idiopathic pulmonary fibrosis (IPF), with observational data suggesting that anti-reflux therapy may have a mortality benefit. Previous studies have mostly focused on the link between acid reflux and IPF, with very little attention on non-acid reflux, which includes digestive enzymes or bile. The objective of this study was to evaluate the presence of both acid and non-acid reflux in a group of IPF patients in a single tertiary referral center.

**Methods:** We retrospectively analyzed consecutive IPF patients who were referred for high resolution esophageal manometry and ambulatory 24-hour esophageal pH and impedance (Z) monitoring. IPF was diagnosed according to accepted guidelines. Data were collected on demographics, lung function, reflux symptoms and anti-reflux therapy. Esophageal acid and non-acid reflux episodes, distal esophageal acid exposure time, and esophageal motility were determined.

**Results:** Thirteen patients with IPF underwent 24-hour esophageal pH+Z monitoring and 8 (62%) were treated with proton-pump inhibitors (PPI) at the time of the study. The mean age was  $68.5 \pm 11.0$  years and 86.7% were males. Mean forced vital capacity and diffusing capacity of carbon monoxide were  $73.1 \pm 19.3\%$  and  $67.2 \pm 14.0\%$  of predicted, respectively. Mean 6-minute walk distance was  $463.8 \pm 147.2$  m. The total distal esophagus acid exposure time was abnormal in 6 (46%) patients. The median number of 24-hour acid reflux events was 1.7 (IQR 0, 5), suggestive of impaired clearance of acidic refluxate, given the abnormal acid exposure time. Of the 8 patients on PPI at the time of study, 4 (50%) had an abnormal acidic pH study. Median number of non-acid reflux events was 19 (IQR 13, 29), with 5 (38%) of the 13 patients having an increased number of non-acid reflux events. Three of these 5 patients (60%) had a normal total acid exposure time and hence the reflux assessment would have been reported as normal in the absence of Z monitoring.

**Conclusion:** In our study, 50% of patients had elevated acid reflux while on PPI, suggesting objective assessment with pH monitoring may be important to optimize anti-secretory therapy when treating GERD in IPF. In addition, acid reflux monitoring via 24-hour ambulatory pH alone without Z monitoring would have missed 60% of patients with abnormal non-acid reflux. Further studies should assess both the role of non-acid reflux and adequacy of existing acid reflux management, in IPF progression, exacerbations and mortality.

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