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Letter to the Editor

Relevance of Measuring Substances in Bronchoalveolar Lavage Fluid for Detecting Aspiration-associated Extraesophageal Reflux Disease

TO THE EDITOR: We read with great interest the paper by Özdemir et al[1] on the assay of lipid-laden macrophages (LLMs) in broncho-alveolar lavage (BAL) fluid of patients with chronic cough as a marker of micro-aspiration of refluxate into airways. The authors found that patients with abnormal extra-esophageal reflux as measured by 24-hour impedance-pH monitoring had higher LLM positivity in BAL specimens than those with normal reflux and, accordingly, they suggested that this BAL finding should be used to diagnose aspiration in reflux-related chronic cough.

The measurement of LLMs from BAL specimens is one of the most widely used tests to identify aspiration-associated extra-esophageal reflux disease (AERD), particularly in children.[2] This test is based on the hypothesis that the refluxate is phagocytosed by alveolar macrophages and that staining for those in the BAL fluid would verify the presence of AERD. However, previous studies have demonstrated conflicting results, because an increase in LLMs has been observed not only in reflux patients, but also in those without reflux and in any disorder leading to pulmonary inflammation.[3,4]

On the other hand, search for pepsin and bile acids in BAL has been shown to represent a more valid and specific biomarker of micro-aspiration in patients with objective evidence of abnormal reflux burden since, up to now, no studies have measured their presence in BAL of healthy volunteers or in patient-controls without evidence of reflux disease.[5] Thus, the detection of the above substances in BAL has been considered overall as a strong confirmation of gastric contents coming up from the stomach into the airways.

Ozdemir et al[1] stated that BAL pepsin levels have been studied very poorly to diagnose gastroesophageal reflux (GERD) in patients with respiratory symptoms and quote the only investigation by Decalmer et al,[6] in which the authors found in controls lower levels of pepsin than those detected in chronic cough patients. However, it must be emphasized that in this study various respiratory conditions beyond GERD were considered to elucidate the presence of unexplained chronic cough and this may have been an important confounding factor.

In our laboratory the detection of pepsin and bile acids in BAL of patients with GERD was also performed in a recent study[7] using impedance-pH monitoring, which is nowadays considered to be the best test for measuring gastroesophageal reflux, also in cases of atypical manifestations of GERD.[8-10] We found that patients with idiopathic pulmonary fibrosis had significantly higher esophageal acid exposure and greater number of acid refluxes than controls, but also that weakly acidic refluxes were remarkably increased. Moreover, more bile acids and pepsin were measured in BAL as a sound marker of gastric aspiration in the upper airways of these patients. Further studies carried out in patients with various pulmonary conditions corroborated our findings.[11,12]

So far, we would like to emphasize that the detection of various substances in BAL can be of great help in the diagnosis of micro-aspiration of refluxate which is able to induce chronic cough and other respiratory symptoms, but the assay of bile acids or pepsin levels seems to provide us with a more valid and reliable marker of contents reaching the larynx and pharynx from the stomach.

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Conflicts of interest: None.
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