



How Do EBC and BAL Compare?

This is an important question which has not been answered sufficiently. We do have some philosophical points to present however.

1. There is no gold standard for measuring inflammation in the lung. There is not even a solid definition of inflammation with which to begin the process of developing a gold standard. The time-tested Rubor, Tumor, Calor, and Dolor are as good a definition of inflammation as we know, although precise components of inflammation can also readily be added to the definition.
2. BAL is certainly not a gold standard. BAL is reasonably good at measuring the cellular component of the airway lining fluid (something which EBC cannot do directly). However, BAL is relatively useless at teaching us about the chemistry of the airway lining fluid. Indeed EBC can tell us much more about the chemistry of the airway than BAL can.
3. One of the reasons why BAL is not helpful in assessing airway chemistry is that there is no dilution marker for BAL. Urea has been attempted but suffers somewhat in that it moves quickly into the BAL fluid while in the airway, making an attempt to equilibrate within the BAL fluid. This causes efforts at using urea as a BAL airway lining fluid dilution marker to overestimate the amount of airway lining fluid recovered.
4. BAL is unequivocally invasive. EBC is unequivocally non-invasive.

Because of the ability to perform repeated EBC collections as frequently as one could desire, EBC may be a particularly useful endpoint in clinical trials in which acute effects are sought, and for which repeated performance of BAL would not be wise or possible.