Clinical drug development using dynamic biomarkers to enable personalized health care in Chronic Obstructive Pulmonary Disease

Despite massive investments in development of novel treatments for heterogeneous diseases such as Chronic Obstructive Pulmonary Disease (COPD), the resources spent have only benefitted a fraction of the population treated. Personalized Health Care to guide selection of a suitable patient population already in the clinical development of new compounds could offer a solution. In this review, we discuss past successes and failures in drug development and biomarker research in COPD. We describe research in COPD phenotypes, and the required characteristics of a suitable biomarker for identifying patients at higher risk of progression. We review the role of extra-cellular matrix proteins found to be upregulated in COPD. Novel biomarkers of connective tissue remodeling which may provide added value for a personalized approach by detecting subgroups of patients with active disease suitable for pharmacological intervention are discussed.

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