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

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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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