Preface

Brøsen, Kim; Damkier, Per

Published in:
Pharmacogenetics

DOI:
10.1016/S1054-3589(18)30034-6

Publication date:
2018

Document version:
Accepted manuscript

Preface

The American geneticist Arno G. Motulsky published in 1957 the first review ever on certain genetic polymorphisms in enzymes predisposing to abnormal drug response. Two years later the German geneticist Friederich Vogel gave the emerging science the name "pharmacogenetics" for the study of genetic differences in drug response. For the remainder of the 20th century pharmacogenetics was mainly devoted to the study of genetic polymorphism in drug metabolizing enzymes, notably the N-acetyltransferase, cytochrome P4502D6 (CYP2D6) and CYP2C19. The relatively narrow focus changed dramatically in the beginning of the 21th century with the completion of the human genome project. In particular because the discovery that somatic mutations may play a pathophysiological role in disease and in particular cancer. Hence the detection of such mutations not only can be used as a diagnostic tool but also as a tool to select the right treatment. However the classical or germline pharmacogenetics is still an important component of what today is interchangeably is called personalized medicine, precision medicine or stratified medicine. Precision medicine and its aliases are the essence of modern medicine. Accordingly patients should be divided into distinct groups and clinical decisions, practices, interventions and products are personalized to meet the needs of the individual patient. Until recently it was implicit that the prediction of the individual patient's risk of disease or response to treatment was carried out on the basis of genetic testing. However it is increasingly recognized that environmental factors, epigenetic factors as well as patient specific host factors in most cases are equally important predictors.

This volume of *Advances in Pharmacology* aims at giving an update on germline pharmacogenetics. The editors are clinical pharmacologists, and we are particularly interested in the applications in clinical medicine. Thus there are chapters on pharmacogenetics in everyday clinical practice, cardiovascular disease, diabetes mellitus, immune modulating therapy, psychiatry, and pain and in children. Cancer is covered by the controversy of tamoxifen and CYP2D6. There are also chapters on pharmacogenetics in adverse drug reactions and in ethnic differences and an update on cytochrome P450. Finally the exiting developments of epigenetics, imaging and use of pharmcoepidemiology in germline pharmacogenetics are covered in separate chapters.

Kim Brøsen Per Damkier