IMPACT OF HUMAN GENOME SEQUENCE INFORMATION ON MOLECULAR DIAGNOSIS AND PHARMACOGENOMICS : DAWN OF NEW ERA OF MOLECULAR MEDICINE

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Publication of the draft human genome sequences and completion of a large number of pathogens' sequences is expecting to revolutionize the various area of medical science. Discovery of the genes whose mutation cause rare diseases would help for the management of genetic diseases and possibly in future would be able to design appropriate therapeutic strategies for cure and intervention. Very little is known about the common diseases, which is thought to be multi-genic and have definite role for the environment. Human genome information would however, accelerate the identification of genetic determinants and the role of environment in such diseases. Immediate effect of the sequence information will be on the emerging field of molecular medicine : disease identification and pharmacogenomics. Genome sequence information together with technological advancement for large scale gene expression analysis by microarray, the development of methods for high throughput analyses of total proteins at a particular condition of growth and their three dimensional structures, coupled with bioinformatics tools and powerful computational capability will help in identifying the new targets for drugs. Besides, such information would enhance the unfolding of molecular basis of drug responses depending on individual's genetic variations either in the targets or in the drug metabolizing enzymes. Combination of advanced methodologies to identify the disease genes and the predictive value of outcome of the drug treatment opens a new era in molecular medicine. Prior knowledge of the effectiveness of the drugs is beneficiary for the patients, the physicians as well as the manufacturer of the drugs.