

LETTER TO EDITOR

Personalized Medicine- A New Genomic Era

Maria Shoaib

To,
The editor,

The human genomic project describes a greater similarity in human gene sequences which unites us as specie but the minor allelic variations in terms of single nucleotide polymorphism makes every individual unique.¹ This reveals an insight into the role of human genetic variation behind differential susceptibility of human diseases and response to pharmacological agents. They also act as an environmental factor in producing varied disease phenotypes more than other factors like patient's age, gender or body weight. This compels to the idea of Personalized Medicine as an emerging therapeutic science.² The name Personalized Medicine suggests an exclusive treatment strategy based on individual genomic info. It is aimed to comprehensively identify genomic differences and correlate with human diseases like malignant tumors and inherited disorders. It is also helpful in further research of genetic risk factors, polygenic variations and also as an important tumor marker or diagnostic tool. Application of Pharmacogenomics, pharmacokinetics and pharmacoproteomics are its basic principles.³

Hereditary factors interplay with genetic and environmental factors for many diseases. Carcinomas and tumors, cardiovascular abnormalities like long QT syndrome, myocardial infarction, auto immune pathology, comorbids like hypertension, diabetes and other genetic disorders have proven multi-factorial etiology. The advances in Personalized Medicine will revolutionize use of genomics for identification of molecular tumor markers, prognostic assessment, disease screening and monitoring of treatment plan. Physicians may eventually be able to perform optimal interventions for patients' condition and genetically informed clinical trial. Moreover, the healthy population can also get aware of their inherited disease risk factors and can live cautious life ahead.⁴ Ethical implication lies while compiling the

genomic sequences, further there would be the risk of racial or personal discrimination. Still getting comprehensive knowledge of the personalized genome is a big hurdle as information should be obtained efficiently with routine analysis and in a cost effective way. For this, medical genetics and its medical and ethical perspectives should be a part of education and capital investment for research advances and application which is the need of time.¹ In clinical practice, personalized medication may bring real progress in health care and treatment modalities. Collaborating academic experts, medical personnel and public sector can make it a reality and a therapeutic miracle. Thus Personalized Medicine is really opening up a new genomic era where possibilities of better treatments and even finding a cure can become even closer. Moreover we could be able to identify a person's risk factors extremely early in their life and even prevent some of these diseases from developing.⁵

REFERENCES:

1. Lee C, Morton CC. Structural genomic variation and personalized medicine. *New England Journal of Medicine*. 2008;358(7):740-1
2. Agrawal S, Khan F. Human genetic variation and personalized medicine. *Indian J Physiol Pharmacol*. 2007;51(1):7-28
3. Hamburg MA, Collins FS. The path to personalized medicine. *New England Journal of Medicine* 2010;363(4):301-4
4. Guttmacher AE, Collins FS. Welcome to the genomic era. *New England Journal of Medicine* 2003;349(10):996-8
5. Samadi D. Conquering Cancer: Personalized Medicine Is the Future. www.huffingtonpost.com/conquering-cancer-personalized-medicine. Updated Jun 19, 2015. www.twitter.com/drdaividsamadi



✉ **Dr. Maria Shoaib**
Dow Medical College
Dow University of Health Science
Email: syedamariashoaib@gmail.com
Received: 08-02-2016
Accepted: 14-02-2016