บทบรรณาธิการ

Editorial

Precision Medicine- What's in a name?

สมชัย บวรกิตติ★

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Personalized Medicine vs. Precision Medicine

In current medical practice, clinicians use personal health information, including genetic, physiological and anatomical information, environmental risk factors, socio-economic issues, cultural and psychological consideration, along with familial and individual health history, to make decisions on the diagnosis and treatment of patients. In one sense, such a practice in medicine has become personalized, but may not always be as precise as physicians and patients would like.

What is new is that biomedical technology now enables a deeper understanding of many diseases, leading to so-called "personalized medicine," as described in a recent article (Bovornkitti S. Personalized Medicine. Buddhachinaraj Med J 2014;31:360-1) .The term "personalized medicine" first appeared in 1999 (Langreth R, Waldholz M. New Era of Personalized Medicine. Melbourne Academic Centre Annual Research Symposium, 19 June 2014).

"Precision medicine" is an outcome of progress in genomics, especially following the completion of human genome sequencing announced by Francis Collins and J. Craig Venter in June 2000, The term "precision medicine" is mentioned in the 2008 publication entitled, *The Innovator's Prescription,* by Clayton Christensen of Harvard Business School, and first appeared in Google Trends and in PubMed in 2011. The new term has gained favor because it is less likely to be misinterpreted as meaning that each patient will be treated differently.

The differences between personalized medicine and precision medicine are as follows: the main goal of personalized medicine consists of tailoring the therapy to different populations, whereas the focus of precision medicine is to characterize the disease and improve the diagnosis.

The definition provided by the United States Office of Science and Technology Policy describes this well: "Precision medicine takes into account individual differences in people's genes, environments, and lifestyles, making it possible

to design highly effective, targeted treatments…." Of the $215 million President Barak Obama requested in 2016 for the Precision Medicine Initiative," $130 would go toward a "national research cohort of a million or more volunteers," who would contribute "medical records; profiles of the patients' genes, metabolites (chemical make up), and microorganisms in and on the body; environmental and lifestyle data; patient-generated information; and personal device and sensor data." In a 2011 National Research Council report entitled, "Toward Precision Medicine: Building a Knowledge Network for Biomedical Research and a New Taxonomy of Disease," this has been called the "Million American Genomes Initiative."

It is worth noting that other countries are already working on building similar cohorts. Thailand is also planning to carry out a somewhat similar project.