

OPPORTUNITIES AND CHALLENGES OF TRADITIONAL CHINESE MEDICINE IN COMING ERA OF PRECISION MEDICINE

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Abstract The era of personalized precision medicine is about to emerge. Disease treatment through personalized precision medicine will become more important as the obvious avenue of research in life sciences. As the part of translational medicine, precision medicine is a further step to understanding traditional Chinese Medicine (CM) and will significantly improve the health of the general public and cut down health care costs. The precision medicine as a new emerging area and therapeutic strategy has occurred and will bring more new therapeutic strategies, drug discovery and development. Potentially, more people in the world could benefit from precision medicine to optimize treatment choices and learn from TCM. Future personalized health care is expected to benefit from the integration of precision medicine into the TCM explore the new targets and mechanisms, discover the lead compounds and make innovative drug design.

Key words: Traditional Chinese medicine, precision medicine

President Obama in the State of the Union Address on January 20, 2015 announced the launch of a new Precision Medicine [1]. Precision Medicine is a biomedical strategy of health care to get the right patient, the right test, the right diagnosis, the right treatment, and in the right amount. Each patient's disease can be analyzed according to genomics and systems biology data to establish the patient's disease process at the molecular level and select right treatments [2]. Precision medicine currently focuses largely on treatment which can reduce morbidity. Disease prevention and treatment are important for the entire population. The question "what and how to be used" of drugs is central to the practice of precision medicine. Moreover, in addition to the diagnosis, treatment is more importantly, so Obama's philosophy of precision medicine only reflects one aspect of precision medicine, not all. Even if the diagnosis is accurate, and there are no effective drugs, we can not achieve the goals of precision medicine.

Phytomedicine is a part of health care systems around the world. The World Health Organization (WHO) estimates that 80% of the world's people rely on herbs for their primary health care needs [3]. Traditional Chinese Medicine (TCM) is one of the oldest phytomedicine systems of health care. TCM treatment with therapeutic strategies in holistic fashion is based on an over-all symptoms and signs of differential syndrome, concerns the disease from various dynamic functional aspects as outlined from a nonlinear point of view [4]. It focuses on the patient rather than disease, promoting enhancing the quality of life. TCM often uses formulae which are comprise by several types of crude herbs tailored to an individual's condition based on subjective diagnosis methods. It now provides perhaps the best opportunity to innovate and improve clinical success rates in drug development [5]. TCM advocates combinatory therapeutic strategies by formulae, in which one represents the key component, and others serve as adjuvant ones to assist the effects or facilitate the delivery of the key components. For example, researchers found that a combination of multiple compounds could achieve more effectiveness than using a single compound [6].

The era of personalized precision medicine is about to emerge. Disease treatment through personalized precision medicine will become more important as the obvious avenue of research in life sciences. As the part of translational medicine, precision medicine is a further step to understanding TCM and will significantly improve the health of the general public and cut down health care costs. The precision medicine as a new emerging area and therapeutic strategy has occurred and will bring more new therapeutic strategies, drug discovery and development. Potentially, more people in the world could benefit from precision medicine to optimize treatment choices and learn from TCM. Future personalized health care is expected to benefit from the integration of precision medicine into the TCM explore the new targets and mechanisms, discover the lead compounds and make innovative drug design. Scientists, governments, pharmaceutical companies and patients should work closely together to ensure the success of this transformation.

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