Precision Medicine(PM): The Recent Innovation in Health care

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Healthcare is transforming, and it is imperative to leverage new technologies to generate new data and support the advent of precision medicine (PM). Recent scientific breakthroughs and technological advancements have improved our understanding of disease pathogenesis and changed the way we diagnose and treat disease leading to more precise, predictable, and powerful health care that is customized for the individual patient. Genetic, genomics and epigenetic alterations appear to be contributing to different diseases. The rapid development in genome sequencing and pharmacogenomics has led to the conclusion that genes might influence drug response. With the wealth of information for different diseases and its link to intrinsic biology, the challenge is now to turn the multi-parametric taxonomic classification of disease into better clinical decision-making by more precisely defining a disease. As a result, the big data revolution has provided an opportunity to apply artificial intelligence (AI) and machine learning algorithms to this vast data set. AI, machine learning algorithms, computational biology, and digital biomarkers will offer an opportunity to translate new data into actionable information thus, allowing earlier diagnosis and precise treatment options. A better understanding and cohesiveness of the different components of the knowledge network is a must to fully exploit its potential.

Keywords: Precision medicine (PM); Pharmacogenomics; artificial intelligence; computational biology; Biomarkers

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