ISSN: 2573-9565

Editorial

Journal of Clinical Review & Case Reports

# The Era of Customized Medicine, Challenges and Skills Required by Health Care Professionals

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**Submitted**: 03 Aug 2018; **Accepted**: 08 Aug 2018; **Published**: 15 Aug 2018

Tailoring of medical intervention to patients has long history, dated back to Hippocrates times, in recent years the term has been risen in use, due to the growth of new diagnostic and informatics approaches yield with deep and better understanding of the molecular basis of disease, in specific the genomics. Another name is Precision medicine, which describes particularly, all procedure that categorizes the patients into different subgroups, with medical decisions, practices, interventions tailored to the predicted response or risk of disease. The concept interchangeably used to describe the terms personalized medicine, precision medicine, and stratified medicine. Saying that an individual's health would be strongly linked to genetic variation, behaviors, and influences from the environment. Personalized healthcare thus, is going to be designed, based on the dynamics of biological systems as well as uses of predictive tools to evaluate health risks. Personalized health care plans will eventually help patients mitigate risks, prevent disease and to treat it with precision when it occurs.

Handling the genetic content of the patient, cellular or molecular analyses through diagnostic testing will be applied as the basis for individualization of dosage forms. As well known facts, Human being is unique and has an exclusive variation of the genome. Testing of patient's fundamental biology, DNA, RNA, or protein by relying on advanced technology will help in disease/disorder confirmation. Different techniques can be applied e.g. Genome sequencing, RNA sequencing, etc. Association between diseases and mutation is one of the approaches. Tailored drug delivery will be the clinical outcome of that concept, includes printing which is connected to freeform fabrication techniques, namely, layer-by-layer technology, which has been a major part in producing the customized scaffolds in bone and tissue engineering. Stereo lithographic, powder based, selective laser sintering, fused deposition modeling, and semi-solid. In spite of enormous potential, still, 3D bio printing technique is facing a regulatory challenge to achieve its maximum potential in the pharmaceutical industry.

Challenges expected to encounter customized medicine practice future wise will be rising from different potentials like, Regulatory oversight, which needs to outline steps, that would have to be taken to integrate genetic and biomarker information for clinical use and drug development. It has been determined to develop specific regulatory science standards. As for the Intellectual property rights, there has been a lot of controversy regarding patent protection for diagnostic tools, genes, and biomarkers. Patient privacy and confidentiality, like psychological effects on patients due to genetic testing results, is another concern which needs to be properly addressed. The right of family members who do not directly consent is another issue, considering that genetic predispositions and risks are inheritable.

As for Skills required, to bridge gaps in practice, health care professionals needs specialized training and awareness on a "genome-wide association studies" (GWAS), which look at one disease, and then sequence the genome of many patients with that particular disease, Mutations that are determined to be related to a disease by a GWAS, and making diagnose that disease by looking at their genome sequence to find that same mutation. Skills related to Genotyping by obtaining an individual's DNA sequence by using biological assays. Skills related to pharmacogenomics, which uses an individual's genome to provide a more informed and tailored drug prescription, and pharmacogenomics process for discovery of genetic variants that predict adverse events to a specific drug have been termed to agnostic. As well as skills related to theranostics or therapeutic diagnostics in medicine, which is the use of diagnostic tests to guide therapy? A combination of therapy and diagnostics. The test may involve medical imaging such as MRI contrast agents (T1 and T2 agents), fluorescent markers (organic dyes and inorganic quantum dots), and nuclear imaging agents (PET radiotracers or SPECT agents), or in vitro lab test including DNA sequencing and often involve deep learning algorithms that weigh the result of testing for several biomarkers [1-6].

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