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Personalized medicine in the perioperative setting: Therapeutic management of post-operative pain, thrombosis risk and reduction of opiate addiction risk

Bill W Massey
Northwestern University, USA

The abuse and misuse of prescription opiates has become a national epidemic. Every day in the U.S., 46 people will die from overdose of prescribed opiates. The use of opiates in post-operative pain management dramatically increases the risk of long-term opiate use and resultant opiate dependence. This presentation will describe a protocol-driven, personalized medicine approach to post-operative pain management and to reducing peri and post-surgical complications and opiate addiction risk. The program uses validated assessment tools to assess thrombosis and addiction risk and combines these assessments with pharmacogenetic profiling and genetic risk markers to provide an integrated, evidence-based personalized therapeutic management plan. The program utilizes these pre-surgical assessments to risk-stratify patients for addiction risk and post-operative complications and groups them into one of three risk strata that determines the intensity and scope of the peri and post-operative management activities. The assessments, patient history, known physiological function, clinical laboratory results and genetic information is combined and presented on a dashboard interface that is used by a pharmacist to create recommendations for personalized therapeutic management. The recommendations are then provided through the patient's electronic medical record to the surgical team. The program also provides pre- and post-surgery counseling and follow-up, app-enabled post-surgical outcomes assessments and closed social media-like messaging to reinforce therapeutic compliance. It is anticipated that the use of integrated coordinated diagnostics and risk-appropriate medical management will have a significant positive impact on the rate of peri and post-operative complications and reduce the incidence of surgery-related prescription opiate addiction and dependence.

bmassey@bwmassey.com

Translational approaches and challenges for personalized cancer medicine

Deepika Bhaskar
University of Delhi, India

Since the Human Genome Project, the emerging scientific era of "omics" has revolutionized the study of cancer. Cancer is driven fundamentally by genetic changes in a multistep progression still being understood, even in the most studied cancer types. Cancer Genome Consortiums are coordinating efforts aimed at identifying all genomic alterations significantly associated with cancer, including genomic loss or amplification, mutations in coding regions, chromosomal rearrangements, aberrant methylation and expression profiles that are discussed. The discovery stage targets the decoding of cancer genomes and using the knowledge for Personalized Cancer Medicine. This study also highlights technologies that empowers cancer genomics, compares and examines the results of genome sequencing and the challenges met in the discovery of new genetic aberrations and discuss the translation of cancer genomics to the clinic.

biodeepika@gmail.com