

Latest Knowledge on Opioids Polymorphism in Pain Management: The Way Forward

SUMMARY:

Acute or chronic pain that occurs after major trauma has negative effects on respiratory function, metabolic demand, wound healing, immunity and mobility. Therefore successful pain management is important after combat-related injuries on every "role" of medical care as in all critically injured trauma patients in order to restore organ functions, reduce the risk of developing complications. In addition, effective pain relief improve rehabilitation period, minimize long-term disability and psychological distress associated with chronic pain.

On the other hand, as opioids are cornerstone therapy for moderate to severe pain in trauma patients who have not responded to nonopioid treatment they are an essential component of battlefield medicine. However, increasing rates of opioid addiction and opioid-related deaths is raising concern in last years. Large inter-individual genetic variability in the efficacy is important problem for pain management in terms of both inadequate pain relief but also for adverse effects.

Single nucleotide polymorphisms (SNPs) is the most common genetic variation affecting both pharmacokinetic and pharmacodynamics pain elements.

In this presentation, data about SNPs on μ -opioid receptor in American, Asian, and European and Balkan populations including our results in Turkish population will be presented as well as the latest literature information about recent publications about opioid polymorphism and proposed algorithms for pain polymorphism.

METHOD & RESULTS:

Data on literature showed that the lowest opioid polymorphism allele frequency was found in African Americans. Asian populations have higher frequencies of it compared to

American and European populations. Although conflicting results are seen in studies about polymorphism and drug effects, meta-analyses evaluating all research showed that opioid polymorphism has mostly impact on opioid response in Asian populations.

CONCLUSION:

Genetic polymorphism can be useful guide for the successful use of long-term opioid therapy especially for chronic pain during rehabilitation period after combat-related injuries. Although routine genetic tests are not routine for pain management, polymorphism screening should be considered in case of persisting pain, grade 3 side effects or more than 4 episodes of breakthrough pain per a day.