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Opioid Epidemic: *Cellular & Molecular Anesthesia* as a Key Solution

Opioids are one of the most important arsenals armamentarium of physicians for fighting against pain. During the decades, opioids have been used in a wide range of indications; both for treatment of acute and chronic pain; as natural and synthetic compounds and in a variety of delivery forms from intravenous infusion to intrathecal adjuvants of local anesthetics or as transdermal patches (1-7).

However, opioids as we know are not harm free drugs with a number of side effects attributable to them. There are very strong concerns regarding the risk of opioid dependence. Currently, in the United States, more than millions of people worldwide are involved with opioid abuse, often as the aftermath of acute or chronic pain management. The US CDC (Centers for Disease Control and Prevention) has announced that the US has reached and epidemic level regarding opioid abuse; leading to increased frequency of opioid abuse and opioid related death (2, 6-8). Currently, the following topics are quoted as the main reasons leading to this devastating epidemic:

- Irrational practice in opioid prescriptionAscensional trend in opioid prescription and misuse
- Increasing trend of illegal or illicit opioid misuse
- Illicit opioid overdose-related deaths
- Ease of access to opioids as highly addictive agents

All stakeholders; including medical care providers, researchers in the field of medicine, surveillance bodies and most importantly, policy makers including high rank decision makers are seriously concerned with the recent increased trend of opioid use in the US (4, 5, 9, 10). The issue is that on one side, we have to help patients suffering pain especially acute perioperative pain and on the other hand, we are faced with an increasing trend of opioid abuse partially due to opioid dependence after acute pain relief using opioids (4, 5, 8-11).

How can we get rid of this epidemic while we impose no more harm to the patients suffering acute or chronic pain? As we know, getting rid of this problem need a well-designed strategic planning; this is well beyond the scope of this editorial. However, one of the main steps in this strategy is to create alternative pathways to bypass opioid use in acute and chronic pain control. The role of emerging drugs is a real promise. Acute and chronic pain control without opioid use is now an attainable objective in the current era of cellular and molecular medicine (12-15).

In this volume of JCMA, a number of studies are published that directly aim the goals of the above strategic planning in harm reduction, through introducing novel analgesic methods; these studies replace opioids with novel non-opioid drugs in controlling pain totally or partially (16-20). Taheri et al, Moshari et al and Aghadavoudi et al deal with acute pain management using opioid sparing methods; with a partial or total replacement of opioids with non-opioids (16-18). On the other hand, Taherian et al, represent their study demonstrating cellular and molecular mechanisms of pain alleviating properties of Malva neglecta on Expression of Inflammatory Biomarkers in patients with chronic crippling pain (19) while Alipour et al present an integrated basic/clinical review dealing with the future novelty windows for pain control based on biologic mechanisms especially considering the role of gut microbiota (20). Of course, there are a number of pioneering ideas and qualified studies published in the previous issues of JCMA and other journals that could effectively lead us to new promising pathways in opioid-free pain control approaches (3, 12-15, 21-25).

There is no doubt that we are in an opioid misuse epidemic status; whether in the US or other countries; but if we want to resolve this miserable multilateral complication, there is no doubt that ***Cellular and Molecular aspects of Anesthesia*** has a key role in resolving the problem; through creating an opioid free pain management era (8).

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